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Liver Complaint, Dyspepsia, Headache.

M. L. Holbrook, M.D.

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LIVER COMPLAINT.

LIVER COMPLAINT,

NERVOUS DYSPEPSIA,

AND

HEADACHE:

THEIR CAUSES, PREVENTION, AND CURE.

By M. L. HOLBROOK, M.D.,

EDITOR OF THE "HERALD OF HEALTH," AUTHOR OF "PARTURITION WITHOUT PAIN," AND "EATING FOR STRENGTH."

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PREFACE.

LIVER Complaint, Dyspepsia, and Headache are three children of the Evil One which have been allowed to propagate till there is no family but suffers from their presence. They are like weeds in a garden, sucking up the nourishment that should go to feed more useful plants. They are like wolves among sheep, carrying off the choicest specimens only to destroy them. They are like thieves among honest people, robbing them of their earnings, and leaving them in poverty. It is time the trio were attacked, uprooted, and routed. Civilization should not tolerate them any more than it does the wild beasts that would carry off our children. We should fight against them as we do against vermin and contagious diseases. The time has not yet come when it is considered disgraceful to have them, but it is disgraceful and sinful to the educated and cultivated, nevertheless—quite as much so as to be unable to read, or write, or speak our own language correctly; and the time will

come when it will be a greater disgrace to have headache, dyspepsia, and liver complaint than to violate all the rules of grammar in composition and speech. The author hopes to help on that day. That the little book here presented may do so is his earnest wish. That it will, if rightly used, aid suffering mortals, victims to pain and disease, he certainly believes, and with this belief he sends it on its mission. It has been a labor of love, and he only desires that it may do as much good to the reader as writing it has given pleasure to the author.

M. L. H.

180 Fifth Avenue,
New York, 1876.

THE LIVER.

CHAPTER I.

General View of the Liver.

This little book which we purpose to write concerning the liver will be plain and simple, as far as it is possible to make it so. It is intended to give general information on a subject quite too little known about. This organ has long been the scapegoat for multitudes of chronic infirmities, which were not well understood. Often it is falsely accused of crimes and shortcomings of which, if it could speak, it would plead "not guilty." Very often, too, it has made trouble in the organism which no human skill could mend. It is our intention to give information in these chapters as to what the liver is, and what it does; so that there shall be more complete knowledge among all as to the use and care of this great organ.

In the first place, it must be known that the liver is a gland, or, rather, a multitude of small glands bound together in one conglomerate body. We may as well inquire here what a gland is, and answer that it is an organ in the body secreting a fluid of some special nature. The word "gland" really does not signify the true function of this organ. "Gland" is from "*gland-*

ula," an acorn, a kernel; and the small glands of the body do sometimes feel like little kernels. As an example, we may make the subject more plain by saying that the mouth is full of little glands, some of which are of considerable size: as the salivary glands, which secrete the salivary juice. Anyone can examine the salivary juice for himself, and thus learn something of the nature of the work that glands have to do. So, too, the skin is full of minute sweat glands, whose business it is to perspire, and thus pour out on the skin, where they may be washed away, certain substances no longer useful. The kidneys, too, are glands, and so are the pancreas and spleen. There is a gland on the neck, called the thoroid gland, which sometimes swells up to a great size, and forms what we call goitre, of which most people have seen examples. There is a gland over each eye, the lachrymal gland, that secretes the tears. The stomach is full of little glands, which secrete gastric juice to digest our food with.

So it is seen that our bodies are full of glands, outside and inside, each having a particular work to do; and the liver is the largest of them all, for it weighs about four pounds, and is not far from one foot in length in its longest direction.

Now let us take a look at it with the mind's eye; or, better still, get a genuine liver from a chicken or some other small animal; for the illustrations we might put in do not, after all, give much of an idea of how this organ looks.

The liver is large. It is also heavy. It is unsymmetrical. It has three lobes, and in color is brownish red. It occupies a large space in the upper part of the abdomen, just under the diaphragm, commencing on the right side and extending across the top of the abdominal cavity, through the epigastric region, and partly through the left side. Below it lie the stomach, transverse colon and right kidney. Behind it are the vertebral column, aorta and vena cava, and in front the wall of the base of the chest. On top the liver is round, or convex. Below, it is partly concave and partly convex. How this great mass is held up and kept from pushing the organs below it down—how it is kept from sinking to the bottom of the abdomen—is a question which will naturally be asked here; and the reply is that there are five ligaments that hold it firmly in its place. Four of these are extensions, or duplicatures, of the peritoneum, or lining membrane of the abdominal cavity; and the fifth is a round, fibrous cord, resulting from the obliteration of the umbilical vein. Thus curiously is this old channel of communication for the blood of the mother to her unborn child turned, in after-life, to use in helping support the liver. So firmly, then, is the liver held in its place that nothing can displace it but great abuse, such as very tight corsets, or unnatural pressure, or accidental injury to the parts.

We said that the liver usually weighs about four pounds, but one learned anatomist has found that in a

pretty well developed person it weighs about one-thirtieth part of the weight of the body; so that a man weighing two hundred pounds would have nearly seven pounds of liver. In childhood the liver weighs about the eighteenth part of the weight of the body; so, when a baby weighs eighteen pounds, there will be of liver one pound. It may be interesting to know that about three-fourths of the entire body of an oyster is liver.

The under surface of the liver is marked with fissures, which divide it into lobes. It is covered externally with an extension of the lining membrane of the abdominal cavity.

We said in the beginning that the liver was a conglomerate gland—that is, one large gland composed of many small ones. Each small one is called a lobule, and each one of these is about one-twenty-fifth of an inch in diameter. The lobules, when cut across, seem to lie around each other, somewhat as the cells of a honeycomb do. The spaces between each lobule are filled with veins, arteries, nerves and bile-ducts; and a section magnified is very beautiful.

The vessels that pour their contents into the liver are:

1. The portal vein.
2. The hepatic artery.

Those that come from it are:

1. The hepatic duct.
2. The hepatic vein.

The hepatic artery brings arterial blood to the liver, but the *portal* vein is very peculiar, and we will give a more complete account of its peculiarities. It arises from the capillaries of the intestines, each little branch joining with others till all are joined, and contains all the blood that has circulated through all the walls of the intestines, and a large quantity of the newly digested food which has been absorbed from the digestive cavity. The fluid, then, in the portal vein is very peculiar, especially just after the food has been digested, it being a mixture of blood and new, fresh nutriment, containing the sugar, albumen, and oily substances we have eaten. During the intervals of digestion, when there is no freshly digested food in the abdominal canal, the blood of the portal vein is like the blood from any other vein. Now the portal vein, instead of going right back to the heart with its load, goes directly up to the liver. Once within the liver it divides and subdivides into minute veins so small the eye cannot detect them, making a network that fills the whole organ. In this minute state they reach the little glandular lobules before spoken of, pass through them, and then join together again, until, all joined, they pass out of the liver under the name of the hepatic vein, which passes on, joining other great veins of the abdomen, till it reaches the heart and pours its contents into the general circulation.

It must not be understood that *all* the food is ab-

sorbed and passed into the portal vein through the liver; for this is also accomplished through the lacteals, or, as they are called in other parts of the body, lymphatics. Their chief business is to absorb, and they are incessantly engaged in this work. They are distributed all through the body, drinking up the transparent, colorless lymph that is found in the tissues. When the digestion of the food is in its full activity, they begin to drink up the oily and other particles from the great cavity of the intestines, and pass it, not through the liver, but by the thoracic duct into the subclavian vein.

The hepatic artery carries blood to all parts of the liver; and finally discharges its blood into the minute branches of the portal vein just as they go into the lobules.

In our next chapter will be shown the functions of the liver; but fearing that it will not be so well understood, we prefer to state here that one reason why this organ is often so lazy and troublesome is that all the blood of the portal vein must be passed through it, that the bile may be secreted; and very often, like a filter, if this blood is overloaded with material that does not pass through readily, it becomes clogged, and then look out for trouble.

CHAPTER II.

Functions of the Liver.

In the previous chapter we gave a brief account of the structure of the liver, and spoke of it as a large conglomerate gland, made up of a multitude of small lobules, through which poured the blood from the hepatic artery, and also the blood from the portal vein. The size of one of these lobules may be imagined when we state that twenty-five of them lying side by side will extend only one inch. If you lay the heads of twenty-five common pins close together, they will extend about two inches; so a liver lobule has not far from half the diameter of a pin-head. With only the naked eye we should make very poor headway in finding out the minute structure of a liver lobule. It is only with our microscopes that we can look into its anatomy.

We have had engraved one of these lobules magnified, so the reader can get an idea of how it looks, and see the vessels that carry blood to and from it. (See Fig. 1.) Figure 2 shows several lobules lying side by side, and somewhat magnified.

We now pass on to the functions or uses of the liver. It has two chief duties—one to manufacture bile, and the other to form sugar—and several of less importance.

With the former most are familiar, and we shall discuss it first.

In the last chapter we traced the ramifications of the portal vein and the hepatic artery throughout the little

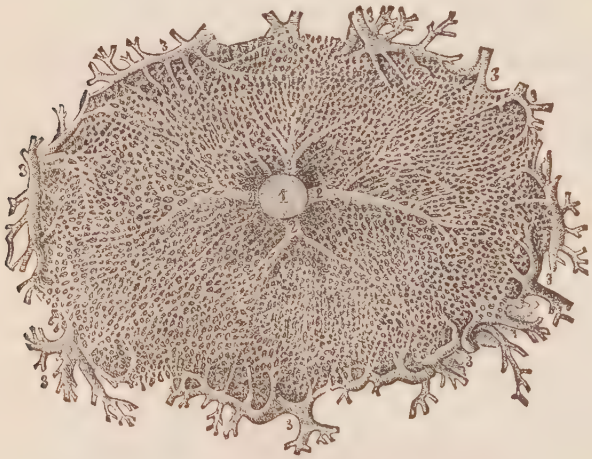

Fig. 1. View of a liver lobule and its vessels.

lobules that lie closely packed together, and make the bulk of the liver. As the blood passes through them, these lobules take out of it certain ingredients and pass them into the bile-ducts, which drain the liver from every part, and unite and reunite into larger ducts until at last they make their exit from the organ in one tube, or sluiceway, draining the liver very much as a farmer would drain a large and uneven swamp into which poured a stream of water. No organ has such

a perfect system of under-drains, and yet it gets clogged much more frequently than is agreeable. Inside these little sluiceways is found a watery fluid of a rich brownish-yellow color, and bitter taste. This is the bile. The bile is, as we said, made from the blood of the hepatic artery and portal vein, as it passes through the liver lobules, and it then passes into the ducts which surround each lobule, and is carried away. As it accumulates in the smaller ducts it passes on, filling the larger branches, which conduct it to the main channel on the under surface of this organ. At this

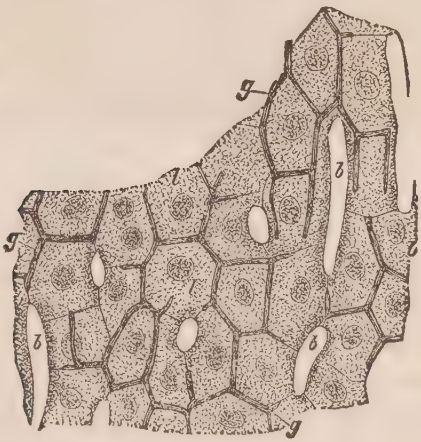

FIG. 2. View of a collection of lobules.

point the bile-duct communicates with a sack or bag, called the gall-bladder, about three inches long. A portion of the bile passes into this bag, especially during the intervals of digestion, where it remains stored up for

future use. Any one can find the gall-bladder of a chicken, or animal, and examine it at his leisure. The bile in the gall-bladder is of a darker color than that in the ducts, owing, doubtless, to the secretion of mucus. The amount of bile in the gall-bladder is greater after long intervals between the taking of food. Immediately after digestion it empties its contents into the duct and passes it on to the intestines, where it meets the food from the stomach and mingles with it. The appearance of the bile in the gall-bladder is of a golden-brown color, and sometimes with shades of green. If any one will empty the bile from some animal into a glass vial, and then shake it so as to mix it with the air, it will give a soapy appearance.

The ingredients of the bile are, in 1,000 parts:

Water	880.00
Biliary salts	90.00
Mineral matter	15.24
Coloring and fatty matter	13.42
Mucus	1.34
	1000.00

The quantity of bile secreted daily varies from two and a half to four pounds. It is least when the diet is mainly flesh, and most in vegetable eaters. It is secreted from both venous and arterial blood, the minute ramifications of the portal vein and hepatic artery joining just as they pass through a lobule. The flow of bile is greatest soon after eating, and when the partly di-

gested food passes from the stomach into the duodenum.

And now that we have traced the bile to its entrance into the duodenum, it will be asked, Of what use is it here, and what is its function? Is it excrementitious or not? No physiologist has yet been able to decide this question. The fact that it is secreted all the time, and nearly always found in the alimentary canal, has led most physiologists to believe that it is at least partly excrementitious. The fact, however, that it is secreted in part from arterial blood, and that the venous blood which pours into the liver from the portal vein is so largely supplied with new material absorbed from the food, and the other fact, that the bile is poured in such large quantities into the duodenum, and there mixed with the partly digested food as it comes from the stomach, seem to us pretty good evidence that it is not excrementitious, any more than the gastric or pancreatic juices are excrementitious.

Once in the intestines, the bile slowly and gradually disappears. Abundant in the upper part of the small intestine, it is less so in the middle part, and altogether disappears in the lower part, so not a trace can be found. There is little doubt that it has some value as an aid to the intestinal digestion, and is again absorbed into the blood as a needful element of nutrition.

That the bile is very necessary to life is known by the fact that if it be not secreted, or if it be

secreted and not allowed to pass into the intestine, the animal or man becomes enfeebled, emaciated, and soon dies.

Up to the year 1848 even physiologists supposed the only important function of the liver was to secrete bile. At this date Bernard announced to the scientific world that he had discovered in the liver a new function—that of forming sugar—and proceeded to show it by experiments. The variety of sugar secreted is the same as that found in the urine in diabetes; but it is not, like that, passed out of the system to its great injury. Indeed, it is not even passed into the bile-ducts as a part of the bile; but it is passed through the liver, and emerges with the venous blood in the hepatic vein. Bernard examined the blood in all the other parts of the body and the tissues, and found no sugar in any of them except what could be traced to the liver; and he traced it from this organ to the heart, then to the lungs, where it seemed to disappear. It is true that the portal vein, which empties its contents into the liver, may contain sugar, if it be taken in the food, otherwise none is found there; whereas the hepatic vein does contain sugar, whether any is taken in the food or not. Indeed, to be sure that the sugar was not derived from the food, most of the experiments have been made on carnivorous animals, which use no sugar.

The sugar formed in the liver resembles glucose, or the sugar resulting from the digestion of starch. The

quantity is small. It ferments readily, and is destroyed in the animal economy with great facility.

The use of the sugar formed in the liver is not well known. It almost always disappears in the lungs, and probably serves the same use as the sugar taken as food —viz., the production of animal heat.

Galen taught that the liver was the source of animal heat—the stove, so to speak, that warmed the body. He also taught that it was the organ that changed the food into blood, and the starting-point of the veins. For sixteen hundred years this doctrine was generally received; and even in the seventeenth century, Harvey, who discovered the circulation of the blood, taught it. The discovery, however, of the lacteals and thoracic duct, showed that a large portion of the food did not pass through the liver at all, and at once this organ fell from its high place below its true one. One eminent physiologist wrote an epitaph of the liver, in which the end of its dominion was pronounced, and it was declared to be an organ only for the secretion of bile. The researches of the last few years, however, go to partially restore it to its old place and power. Observations go to show that the liver is, to some extent, a blood-forming, blood-destroying and blood-purifying organ, that the albumen and fibrin of the blood are disintegrated in passing through it, and substances formed that the kidneys can eliminate. It is calculated that the blood loses a large amount of fibrin in passing through the liver,

and if at any time this function is destroyed the body suffers, the accumulation of fibrin being a source of acute rheumatism and other diseases. So, too, the white blood-corpuscles are believed to have their birth in the liver, and the red corpuscles are known to be destroyed there.

CHAPTER III.

The Bile: its Quantity and Uses.

In a previous chapter the quantity of bile secreted daily was stated to be from two and a half to four pounds. Knowledge on this point is, however, limited. The amount must vary in different persons, and in the same person at different times. It differs, no doubt, with the food, the health, the activity, the respiration, and the vigor of the skin. Dr. Murchison says:

"Although the amount of bile secreted daily must vary in different persons, and in the same person under different circumstances, being modified by the quantity and quality of the food, the activity of respiration, and other conditions, it is clear from the facts now ascertained that but a small proportion of what is ordinarily secreted is discharged from the bowel. Berzelius found in 1,000 parts of fresh human feces only nine parts of a substance similar to bile, which, on the calculation that the daily feces of a man weigh five and one-half ounces, would make a total of twenty-four grains of dried bile in a day. Now, assuming that the liver secretes forty ounces of bile in a day, containing only five per cent. of solid matter, which is considerably below the average proportion, the amount of dried bile secreted in one day

would be 960 grains, or forty times the quantity discharged from the bowel. According to Bischoff, man discharges about forty-six grains of the (altered) biliary acids by the feces per diem, while Voit's estimates give 170 grains as the quantity daily formed by the liver; 124 grains must, therefore, be otherwise disposed of. Bidder and Schmidt have also found that not more than one-eighth of the sulphur of the bile is normally excreted with the feces. The bile pigment is generally believed to be all voided by the feces; but this is clearly not the case, if there be any truth in the view, already referred to, that urinary pigment is formed from bile pigment; while the fact, familiar to all clinical observers, that the bile pigment discharged from the bowel is greatly increased by calomel and other aperients, *without any corresponding increase of secretion by the liver*, also seems to show that, under ordinary circumstances, much of the bile-pigment secreted by the liver is not discharged with the feces. It may be added that, in carnivorous animals and in snakes, although bile-pigment is secreted in abundance by the liver, the quantity discharged with the feces is even relatively less than in man.

"The question then arises as to what becomes of the bile which is not discharged from the bowel; and it is obviously one having an important bearing on the pathology of many cases of jaundice, as well as upon that of many functional derangements of the liver. The reply

is to be found in the fact that a large proportion of the bile secreted by the liver is again absorbed, either by the biliary passages, or by the mucous membrane of the bowel. From what is now known of the diffusibility of fluids through animal membranes, it is impossible to conceive bile long in contact with the lining membrane of the gall-bladder, bile-ducts and intestine, without a large portion of it passing into the circulating blood.

"The constant secretion and reabsorption of bile is, in fact, merely part of that osmotic circulation constantly taking place between the fluid contents of the bowel and the blood, the existence of which is too little heeded in our pathological speculations and in therapeutics, although attention was called to it eighteen years ago by Dr. Parkes. 'It is now known,' says Dr. Parkes, 'that, in varying degrees, there is a constant transit of fluid from the blood into the alimentary canal, and as rapid reabsorption. The amount thus poured out and absorbed in twenty-four hours is almost incredible, and of itself constitutes a secondary or intermediate circulation never dreamed of by Harvey.' The amount of gastric juice alone passing into the stomach in a day, and then reabsorbed, amounted, in the case lately examined by Grunewald, to nearly twenty-three imperial pints. If we put it at twelve pints we shall certainly be within the mark. The pancreas, according to Kroeger, furnishes twelve pints and a half in twenty-four hours, while the salivary glands pour out at least three pints in

the same time. The amount of the bile is probably over two pints. The amount given out by the intestinal mucous membrane cannot be guessed at, but must be enormous. Altogether, the amount of fluid effused into the alimentary canal in twenty-four hours amounts to much more than the whole amount of blood in the body; in other words, every portion of the blood may, and possibly does, pass several times into the alimentary canal in twenty-four hours. The effect of this continual outpouring is supposed to be to aid metamorphosis; the same substance, more or less changed, seems to be thrown out and reabsorbed until it be adapted for the repair of tissue, or becomes effete. How many times this cycle of movement is repeated before the bile is extruded from the system we have no means of knowing, but in the course of this osmotic circulation much of the bile appears to become transformed into products which are eliminated by the lungs and kidneys, while, at the same time, this circulation assists in the assimilation of the nutritive materials derived from the food.

"In the first place, it assists in the absorption of fat. It is a well-known clinical fact that when the common bile-duct becomes obstructed, from any cause, the fat throughout the body wastes. Bidder and Schmidt likewise found that, after applying a ligature to the gall-duct of a dog, the animal absorbed less fat than before, and there was also a diminution of fatty matter in the chyle in the thoracic duct; the amount absorbed was cal-

culated from a comparison of the fat eaten with the amount passed in the feces. There are also grounds for thinking that the entrance of bile into the bowels facilitates the absorption of the albuminous constituents of the food. Some experiments of Bernard led him to the conclusion that gastric juice, when mixed with pancreatic juice and bile, has a more solvent action on albuminous substances than the gastric juice alone."

From what has been stated, it follows that the functions of the liver may be summed up under the following heads:

1. The formation of sugar, which contributes to the maintenance of animal heat, and to the nutrition of the blood and tissues, and the development of white blood-corpuscles.

2. The destructive metamorphosis of albuminoid matter, and the formation of urea and other nitrogenous products, which are subsequently eliminated by the kidneys—these chemical changes also contributing to the development of animal heat.

3. The secretion of bile, the greater part of which is reabsorbed, assisting in the assimilation of fat and peptones, and probably in those chemical changes which go on in the liver and portal circulation; while a small part is excreted, and, in passing along the bowels, stimulates peristaltic action and arrests decomposition.

CHAPTER IV.

Derangements of the Liver.

From what has been said in preceding chapters, it will be inferred that the health of the body depends very largely upon the health of the liver. If it secretes its bile normally and performs its other functions healthfully, then the whole body has the benefit of its good work. But if, on the other hand, it is lazy, or excited, or perverse, or weak, or idle, then come troubles innumerable. There is hardly an ailment that is not or has not been ascribed to it. Diseases of the body and mind, diseases and morbid tendencies of the heart or conscience, diseases of the kidneys, lungs, stomach, bowels, nerves—all have their origin in the liver. So great is the number of diseases caused by torpid and fractious livers, that it has become the habit of many physicians, and others, to ascribe doubtful bodily trouble to this organ. Such a course often indicates a physician's ignorance, and satisfies the patient that his diseases are, after all, not very serious.

When we come to classify the diseases of the liver, we find they are few, but their symptoms and complications are many. The unprofessional reader gives a general name to diseases of the liver. He describes them a

"torpid liver," and, for his purpose, the name is perfectly satisfactory. It covers many of the functional diseases of this organ. In former times, the physician gave, and even now gives, to the functional derangements of the liver the names "acute inflammation," "chronic inflammation," and "congestion." Dr. Copeland, once high authority, arranges the diseases of the liver under the following heads:

1. Increased secretion of bile.
2. Diminished secretion of bile.
3. Altered secretion of bile.

This list of diseases, however, only recognized the secretion of bile as the function of the liver, and did not include the other functions of this organ.

Dr. Murchison, the latest authority on functional diseases of this organ, makes the following classification:

1. Abnormal nutrition.
2. Abnormal elimination.
3. Abnormal disintegration.
4. Derangements of the organs of digestion.
5. Derangements of the nervous system.
6. Derangements of the organs of circulation.
7. Derangements of the organs of respiration.
8. Derangements of the kidneys.
9. Derangements of the condition of the skin.

At first thought, this classification seems very far-fetched; but, if carefully studied, we think it will be found to be more in accordance with the popular term "torpid

liver" than any other, and for this reason we shall adopt it, and draw somewhat from the work of Dr. Murchison for material for this and future chapters. If at first this classification should seem abstruse, we beg the reader not to allow himself to be discouraged, but to try and master it. We shall try to make the subject simple. It must be borne in mind, however, that the functions of the liver are manifold, and not confined to the mere secretion of bile.

ABNORMAL NUTRITION.

There are two forms of abnormal nutrition to be considered: first, excessive fat; second, emaciation.

What the liver has to do with the accumulation or non-accumulation of fat in the system may not seem clear. It may be that the liver has in some instances an abnormal power of converting the glycogen, or liver sugar, into fat; or it may be that the sugar and starch of the food are, from some defect of the working of the liver, converted directly into fat instead of being oxidized, and thus corpulence results. One thing is very certain, fat people are apt to suffer from constipation, drowsiness after meals, heaviness, weariness, flatulence, and all the symptoms of derangement of the liver; and it is well known that persons who tipple are generally sufferers from liver troubles, and as these increase so also does corpulence.

Excessive leanness, as almost everybody knows, is generally associated with derangement of the liver. It may be explained in various ways.

It will be remembered that one of the uses of bile is to aid in the assimilation of fat. As this fluid is poured into the intestines it meets the partly-digested food, and fits it for absorption. Now, if the bile be deficient in quantity or vitiated in quality, the fatty matter will not be properly prepared for absorption; consequently, the fats in our food will not be absorbed, but pass out of the body through the bowels. Not only will a deficient flow of bile cause the non-absorption of fats, but also of albumen and other products of digestion, and so the muscular and other tissues will be starved, and emaciation be the result.

Emaciation, as well as excessive fatness, may be the result of some derangement of the sugar-forming function of the liver. It may occur in the following ways:

1. One of the functions of the liver is to change the starch sugar and glucose of food into liver sugar, a substance useful in building up cell growth and maintaining animal heat. Now if the liver fails to do this, the sugar of our food will pass directly into the circulation and cause a disease known as diabetes, in which it is carried out of the system through the kidneys without doing any good. Emaciation is one of the results of this disease. According to some authorities, half the cases of diabetes are caused by this arrest of the power of the liver to convert common sugar into glycogen or liver sugar.

2. Dr. Murchison thinks it not improbable that other wasting diseases are, in their origin, connected with some

functional derangement of the liver. When there is derangement of the disintegrative function of the liver, the blood and fluid effused from it become loaded with effete matter, as the result of which the nutrition of the tissues is often impaired and the body wastes. In phthisis, again, long before tubercle is deposited in the lungs, there is evidence of deficient assimilation of nutriment and imperfect sanguification—functions in which we know that the liver is deeply concerned. Again, the protracted purulent discharge which usually precedes waxy disease may entail a hasty and imperfect sanguification, resulting in anæmia and the formation of an albuminous material little capable of organization. We shall learn more on this subject as we proceed.

CHAPTER V.

Torpid Livers.

In popular phraseology, the sentence "a torpid liver" is well understood. It means a liver that has lost its power of healthy action. All parts of the body have their times of being torpid, so to speak; and this characteristic is not confined to snakes and toads and frogs, that burrow all winter in caves and holes away from the cold, nor to bears and such animals as sleep for many months at a time. A limb may become torpid and numb, and its owner not be able to move it. The whole body may be torpid and inactive. Even the mental part of our nature may become very lethargic, through indolence and laziness, or an insufficiency of rich, well-oxygenated blood. Although the expression "a torpid liver" is more significant than almost any other, yet it is hardly recognized in medical books. The scientific physician, who writes learnedly on this subject, rarely mentions any disease called "torpid liver." Copeland says one of the functional diseases of the liver is a deficient secretion of bile. Any one can see that only a torpid liver is meant by this expression. Dr. Murchison speaks of abnormal elimination; but this, too, is only another name for torpid liver, as he himself declares at

the end of a very interesting chapter on diseases of the liver.

Now this abnormal or deficient elimination of bile from the liver is a serious thing; for while the results are rarely fatal at once, the distressing symptoms which accompany them are exceedingly uncomfortable to those who experience them; and the accompanying lowering of vitality, which is no doubt often the cause rather than the effect of torpid liver, may end in consumption, bronchitis, or years of chronic invalidism.

Some of the prominent symptoms of torpid liver are:

1. An irregular and costive condition of the bowels, with pale, whitish stools.
2. Loss of appetite.
3. A white or yellowish furred tongue.
4. A disagreeable, often bitter, taste in the mouth in the morning.
5. Flatulence.
6. A sallow, muddy tint of the skin.
7. A dingy white of the eye.
8. Frontal headache.
9. Dullness, heaviness and drowsiness after meals.
10. Very great depression of spirits—hypochondriasis.
11. Unnatural urine, leaving a deposit of urate of soda.

To these may be added occasionally, though not always, symptoms of blood-poisoning, as delirium, stupor, muscular tremors, palpitation of the heart, convulsions,

etc. These symptoms often give rise to mental aberration, to abnormal views of life, to dark and gloomy anticipations of the future, to hopelessness, to lack of energy, to peevish temper, to excitement and anger, the breaking of friendships, and the destruction of love between those who have pledged themselves to love each other faithfully till death.

Now comes a very important question: Is the liver, after all, entirely at fault for all these symptoms? Sometimes it may be, but more frequently much of the torpidity of the liver is only an indication that the whole system is torpid too; that the vitality is lowered, that digestion is impaired, that muscular tone is deteriorated, and the nervous system weakened; so that the fault is a general one of the whole body, and not a special one of the liver. Perhaps the blood is deficient in quantity, or bad in quality, and the liver cannot manufacture sufficient bile from it. Perhaps the food is bad, or insufficient exercise is taken. The general belief and teaching of medical men is that if the bile is not secreted it remains behind in the blood, poisoning it. Now it is very true that the materials out of which bile is made may be retained in the blood, rendering it impure; but it cannot be true that bile itself is retained in the blood, because it is not bile until it has been secreted by the liver. Besides bile is not a poison. It is true that efforts have been made by physiologists to prove that bile injected into the blood of an animal poi-

sons it so that it dies. Well-water, or milk, or blood, or even air injected into the veins, may cause death; and yet none of them is a poison. Further, bile has repeatedly been injected into the veins of animals without harming them more than the wound and operation itself. Besides, if the bile is such a poison, why should nearly all of it be again absorbed into the blood from the intestines with the newly-digested food? If it were such a poison, it would endanger life constantly. From this point of view, then, the principal harm to the system through a torpid liver is from the retention in the blood of the elements of the bile, so that they shall exist in excess. But even this injury must be insignificant compared with the harm that comes from a failure of the bile in the intestines to perform its functions there. The bile is very important to intestinal digestion, and, unless supplied, the system suffers from defective nutrition, an evil than which there are few greater.

CHAPTER VI.

Relation of the Liver to the Kidneys.

One of the chief functions of the kidneys is the separating of *urea* from the blood. This substance constitutes the most important part of the solid portion of urine. In 1,000 parts of urine there are often as high as twenty-five parts of urea—an amount many times greater than any other substance in it except water, which is only a solvent and not a product of the waste of the body. And what is urea? It is one of the products of the disintegration of the albumen and fibrin of the tissues and blood. It is pretty well established that urea is largely formed by the passage of the blood through the liver. In this organ the albumen and fibrin of the blood are oxidized, and urea is the result. This urea is exceedingly soluble, and is very easily separated from the blood by the kidneys as it passes through them. It is also exceedingly poisonous, and if it accumulates dangerous symptoms supervene. When the kidneys are in good health, so rapidly do they separate the urea from the blood that analysis reveals only a small amount of it there. According to modern authorities, one of the chief diseases of the liver is its failure to convert a portion of the albumen and fibrin of the blood,

as it goes through this organ, into urea. From lack of power, or some other reason, the liver only partly disintegrates the albumen; and, instead of perfectly oxidizing it, leaves it in the form of uric acid. Now uric acid and its compounds, the urates, while not so poisonous as urea, are much more injurious to the system, because they are not so soluble nor so easily separated by the kidneys from the blood; consequently they do, to some extent, accumulate, and, circulating in the blood, produce serious and troublesome diseases

There are few persons who at times do not suffer from an accumulation of uric acid in the blood, and its deposit in the urine. This may be the result of taking an excessive amount of food at a single meal, and can be remedied by a return to regular habits of diet. But in those whose livers are weak this may become the habitual condition. So, too, when a person is past the prime of life the liver becomes debilitated; and if the eating habits of earlier and more vigorous years are maintained, its inability to convert the albumen into urea is increased, uric acid forms faster than it can be got rid of, and so it accumulates in the system and is deposited in various ways as urinary deposits. Those who eat much and exercise little are sure to suffer.

The symptoms of this fault of the liver are best given by Dr. Murchison, the highest authority on this subject, as follows:

"The most common are the following:

"A feeling of weight and fullness at the epigastrium and in the region of the liver.

"Flatulent distension of the stomach and bowels.

"Heartburn and acid eructations.

"A feeling of oppression, and often of weariness and aching pains in the limbs, or of insurmountable sleepiness after meals.

"A furred tongue, which is often large and indented at the edges, and a clammy, bitter or metallic taste in the mouth, especially in the morning.

"Appetite often good, at other times anorexia and nausea.

"An excessive secretion of viscid mucus in the fauces and at the back of the nose.

"Constipation, the motions being scybalous, sometimes too dark, at others too light, or even clay colored. Occasionally attacks of diarrhea, alternating with constipation, especially if the patient be intemperate in the use of alcohol.

"In some patients attacks of palpitation of the heart, or irregularity or intermission of the pulse.

"In many patients attacks of frontal headache.

"In many patients restlessness at night and bad dreams.

"In some patients attacks of vertigo, or dimness of sight, often induced by particular articles of diet.

"All these symptoms are liable to occasional aggravation from errors in diet. Gradually the patient is

taught by experience to become more careful as to what he eats or drinks. One thing after another he is compelled to give up. First, he renounces malt liquors; then he discovers that port wine, madeira, champagne, and burgundy disagree, and he betakes himself for a time to 'dry sherry;' but at length this does not suit; and after an interval, during which a trial is made of claret or hock, the patient, probably under medical advice, finds temporary relief by substituting, for wines, brandy or whisky largely diluted with water. At last, unless he be misled by the fashionable, but, to my mind, erroneous, doctrine of the present day, that alcohol in one form or another is necessary for digestion, or to enable a man to get through his mental or bodily work, *he finds that he enjoys best health when he abstains altogether from wine and spirits, and drinks plain water.* The patient goes through a like experience with regard to solid food; one dish after another—very often what he likes best—has to be given up; until at length, if he be well advised, and has the sense to follow the advice, he restricts himself to the plainest food, in moderate quantity. As a rule, those articles of diet which contain much saccharine or oleaginous matter are apt to disagree; and not, as might perhaps have been expected, nitrogenous food, if plainly cooked. In most of these cases the digestion appears to be strongest in the morning, and the patient suffers from late dinners or suppers."

CHAPTER VII.

Diseases Caused by Uric Acid.

Let us now see what trouble this uric acid causes in the blood, see what diseases it brings on, and what other injuries it effects.

We all know that when our watches get dirty they do not keep good time, but run fast or slow, or even stop altogether. So, too, when the blood becomes impure the body cannot remain in good health, but varies from the true and high standard we should all aim for; and I cannot avoid saying here that, as most people appreciate and like to carry a watch that keeps true time, so should they also like and try to own a body that maintains itself in a high state of vigor.

One of the diseases which results from an accumulation of uric acid in the blood is gout. Fortunately this is not so frequent a disease in this country as among the aristocracy in England, who eat more and exercise less than we do; but there is some gout in our own country among the rich and overfed, and there is a great deal more of what may be termed incipient gout, or suppressed gout. It is not gout localized in the joints, but it is a sort of gouty condition all through the tissues and organs. What is gout? It is only, so to speak, a

condition in which there is a deposit of urate of soda about the joints. When the blood gets so full of uric acid that it cannot hold it any longer, the acid is formed into a salt, and deposited about the joints; and this is all due, in the first place, to the inability of the liver to convert albumen into urea. We might trace the subject back still further, and see that the original cause was over-indulgence of appetite, drink, or too little exercise; but this is not necessary at the present stage of our inquiries.

Another disease—the result of uric acid in the blood—is gravel; or, to call it by a more scientific name, *urinary calculi*, from the Latin word *calculus*, a stone. The uric acid, instead of being deposited about the joints, is deposited in the kidneys and bladder. Urinary calculi are very common in gouty people, and whoever suffers from them suffers bodily torments more excruciating than any human being can imagine.

Gall-stones, or biliary calculi, are only another form of the same general condition of the blood; and although gall-stones are not identical in substance with gravel, or the concretions about the joints in gout, yet they are believed to be caused by the same deteriorated condition of the blood.

We now pass on to consider a disease very dangerous and fatal, caused by the same general disorder of the liver—to wit, Bright's disease. Dr. Murchison says emphatically that it is caused in persons advanced in age by *lithemia*. The result is that the kidneys become dis-

organized and the patient dies. Fatty degeneration of the liver, and cancer of the liver, also have, it is believed, the same origin; or, if not exactly the same, one very similar: the liver becomes weakened, and fails to do its duty. Uric acid in the blood is the result, and the liver itself may, if the course of life be not changed, break down in fatty degeneration.

There is a wonderful sympathy between all the organs of the body, so that if one suffers all suffer with it. This is not perhaps so much the case in early life as it is after the decline of the bodily powers has begun. We have just seen how, when the liver is disordered, the kidneys suffer. We now call the reader's attention to the fact that when the liver suffers, every tissue of the body suffers too. The poisoned blood, caused by the liver not doing its duty, circulates in every part of the body, and weakens and poisons every tissue. Fatty or calcareous matter is deposited where good tissue is wanted; the walls of the arteries grow weak, and perhaps burst, letting a flood of blood into the brain, which causes apoplexy; the heart's valves weaken and give out, and the heart sends clots of blood through the arteries, plugging them up and causing serious trouble. We do not say that the liver is always the only faulty organ; but it is generally the one which, connected with the digestive function, causes most disease

I would gladly stop here, and bring no more grave charges against so respectable an organ; but duty com-

pels me to say that this excess of uric acid in the blood may so weaken the powers of resistance in the system as to make it very liable to attacks of inflammatory diseases. Persons suffering from an accumulation of uric acid in the blood are, if exposed, liable to take cold, which, centering in the lungs, causes inflammation of these organs, accompanied by fever. There is little doubt but in many cases it was the presence in the blood of the uric acid that determined the inflammation. Acute rheumatism is another disease which may have the same cause; and so have scrofula, anæmia, chlorosis —diseases characterized by great deficiency of healthy blood and healthy tissue.

CHAPTER VIII.

Other Diseases Caused by Deranged Liver.

In former chapters we have referred with considerable fullness to the effects of disease of the liver on the blood and the system generally. In this paper we shall speak of the effects upon digestion and the functions of the whole alimentary track, beginning with the mouth.

The Mouth.—Not every case of derangement of the liver shows its effects in the mouth; for the tongue may, in spite of the liver, present in the morning a clean or nearly clean surface, and the mouth taste comparatively sweet; but this is not generally the case. In a majority of instances, the tongue will be coated in the morning of a whitish or yellowish white or brown color. Sometimes the tongue presents a flabby appearance, or looks enlarged, and the teeth easily make indentations in it that do not at once disappear. Sometimes the papillæ on the margin of the tongue become more or less congested, enlarge, and look red and angry. The disagreeable bitter taste in the mouth in the morning may generally be traced to the derangements of the liver. In what way this comes about is not quite clear; but there is one constituent of the bile, taurocholic acid, that is very bitter, and may be the cause of that most disagreeable

taste that nearly every person can better understand than describe. In a perfectly healthy person the mouth tastes sweet and feels clean in the morning, and this should be the ideal standard that all ought to try to maintain. Who knows how much of the lying and false swearing, the loose, impulsive language and foolish talk may come from a mouth polluted by a deranged liver?

Morbid Appetite.—In good health the appetite is free from much variation, and craves only wholesome and nutritious food. In disease the appetite varies, and is either wanting, or slight, or capricious; or it is craving and violent in its demands, refusing to be guided by reason and good sense.

In some cases the appetite is good; but where the secretion of bile is deficient, so that digestion in the duodenum cannot go on vigorously, it is generally poor, and food does not relish as it should. This is especially the case with food of a carbonaceous character, including the oils and fats. These substances cannot be digested without the aid of bile, and if there be no bile to digest them, or if there be too little of it, then there will of necessity be a loathing of such food. This is one reason why, in dyspepsia and liver complaint, so many suffer from cold hands and feet, defective circulation and emaciation. There is not rich blood enough, or in sufficient quantity, to fill up the arteries, and warm and invigorate the body. The fault may not be entirely with the liver, but much of it is.

Wind in the Bowels.—Flatulence is a characteristic of disease of the liver. Flatulence in the bowels indicates defective digestion in these parts It will be remembered that, beside its digestive power over the fats, the bile exerts an antiseptic property over the albuminous elements of food, preventing decomposition. If, however, the bile be deficient in quantity, then this effect is lost, and the food decomposes as it passes along these channels, and generates the gas which causes flatulence.

Irregular Action of the Bowels.—No one knows better than a person with a torpid liver how irregular the bowels are apt to become. Sometimes constipation prevails and sometimes diarrhea. Nothing can be much worse than persistent constipation. To lock up in the bowels for days matter that Nature has rejected is very injurious to the health. There may be other causes of constipation than a deficiency of bile, but this alone will cause it. The reason is this: the presence of a normal quantity of bile in the intestines stimulates the peristaltic action of the bowels, and prevents their becoming clogged up.

On the other hand, the liver may be excited to unusual action, after being torpid for some time, and for a short time secrete too much bile, which will irritate the bowels and cause diarrhea.

Hemorrhoids.—Dr. Murchison makes the statement that nearly all cases of this disease have their cause in

the liver. We think he has over-estimated it, but we give his statement as the latest high authority on this subject.

Sideache.—In chronic torpidity of the liver acute pain may not be present; but a dull, heavy, uneasy feeling is pretty sure to exist. So, too, when there is congestion of this organ there is considerable pain present. Not all sideache, however, is caused by disease of this organ, for it may come from slight inflammation of the peritoneal membrane investing the liver.

Jaundice.—We cannot, in the brief space of this paragraph, explain how jaundice is caused; but it is a disease of the liver, and one which no person cares to have. The briefest explanation as to its cause is that the bile, after it is secreted, is again absorbed into the blood, either from obstruction of the bile-duct, constipation, or some other cause.

CHAPTER IX.

Effect of a Deranged Liver on the Nerves.

We quote this chapter from Dr. Murchison's able work on the liver:

"1. *Aching pains in the limbs and lassitude*, coming on about an hour after a full meal, and sometimes associated with an irresistible tendency to drowsiness, are very common symptoms resulting from hepatic derangement with uræmia. They are often attended by flatulence and other indications of atonic dyspepsia.

"2. *Pain in the Shoulder.*—It is well known that, in organic disease of the liver, complaint is often made of a dull, heavy, or aching pain about the right, and more rarely about the left, shoulder-blade, which is accounted for by the connection existing between the branches of the subclavius nerve and the phrenic. Patients with uræmia often complain of a similar pain.

"3. *Hepatic Neuralgia.*—In rare cases, a neuralgic pain seems to occur in the liver itself. Many, probably most, of the reported cases of 'neuralgic hepatis' have probably been examples of biliary colic, where the stone has never advanced beyond the neck of the gall-bladder

or the cystic duct, so as to cause jaundice. Our experience would certainly lead us to doubt the purely neuralgic character of any such attack in which the pain is followed by jaundice, as has happened in some of the recorded cases. Other instances of supposed hepatic neuralgia have probably been examples of nephritic colic from renal calculi, where the pain, as we have known happen, radiates horizontally forward, instead of taking the usual direction downward toward the pubes. But, making allowance for such mistakes in diagnosis, a certain number of cases remain which appear to be examples of true neuralgia of the liver. Cases of this sort have been described by Trousseau, Anstie, and other authors, and a few have come under our notice. The patients, in these cases, have been liable to sudden attacks, often periodic, of severe pain in the right hypochondrium, and radiating thence to the right shoulder, with tenderness over one or more of the dorsal spinous processes. They have been, for the most part, of nervous temperament, and subject to neuralgic pains in other parts of the body; and in most instances the attacks have been attended with great depression of spirits. The cause of the attacks is to be sought for in a general neuralgic tendency, rather than in any disorder of the liver. Trousseau, however, has pointed out that hepatic colic from gall-stones may excite a true neuralgia. After showing how the peripheral irritation of a false tooth may excite facial neuralgia, he observes:

'The same thing obtains in hepatic colic. Fearful pains set up suddenly in the pit of the stomach and in the region of the gall-bladder and of the ductus communis choledochus. So far there is merely local pain, without neuralgia, and there is no tendency on pressure of the dorsal spinous processes; but, after two or three days spent in acute pain, a sharp pain is frequently complained of in the seventh, eighth, and ninth intercostal spaces, in the shoulder, in the neck, and in the arm on the same side; from that time neuralgia exists, and the vertebræ become very tender on pressure.'

"4. *Severe cramps* in the legs and different parts of the body are a common symptom in persons who are the subjects of uræmia. They often come on during the night, and they are most common in cold and damp weather. The late Sir Charles Scudamore remarked that, in some gouty persons, they produced such intense suffering as to form the leading feature of the disease. Sometimes they precede a paroxysm of articular gout. Two remarkable instances of this result of uræmia have been recorded by Dr. Bence Jones. The first was that of a gentleman aged forty, who for years had been liable to constant deposits of lithic acid and lithates in the urine. He then became the subject of attacks of violent pain in the stomach, coming on from one to five hours after a late dinner. The pain was intermittently spasmodic; the most intense pain was reached in half a minute; it then relaxed, and returned as badly as before

in two minutes. His suffering lasted about an hour, when the pain gradually abated, leaving a tenderness on pressure and an irritability after food for two or three days. After the attack, the urine always deposited lithic acid crystals. These attacks lasted for several months, but, under a careful diet they entirely ceased. The second patient, who also was the subject of uræmia, was seized with violent cramps in the rectum, coming on six or eight hours after food, and lasting from half an hour to an hour. The attacks entirely ceased under the same treatment as that in the first case.

"5. *Headache* is a not unfrequent result of hepatic derangement. Most commonly it takes the form of a dull, heavy pain in the forehead, more rarely in the occiput, complained of as soon as the patient awakes in the morning, and either speedily ceases, or lasts the greater part of the day or for several days. Such headaches are common in the subjects of uræmia after any indiscretion in diet, or when the bowels are constipated. Their immediate cause is probably the presence in the blood of some abnormal product of albumen metamorphosis; the derangement of the liver is usually indicated by pain and fullness in the right hypochondrium, flatulence, and high-colored urine loaded with lithates.

"From these headaches it is necessary to distinguish *Megrim*, which is the form of headache to which, unfortunately, the terms 'bilious' or 'sick' are still popularly applied. This is neuralgia, which probably in mo-

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cases is in no way connected with hepatic derangement, the bilious symptoms being the result, and not the cause, of the attack, and the presence of bile in the vomited matter being, as in sea-sickness, simply due to the urgency of the vomiting. Although this view was enunciated two centuries ago by Sydenham, and since his time has been clearly set forth in many medical writings recently published, it is still the fashion to attribute these attacks to 'biliousness' or to 'an excess of bile in the system.'

"But, while fully admitting that megrim is in no way connected with retained bile, I agree with those authors who believe that certain cases of megrim are toxic in their origin, being symptomatic of gout and of some other disorders. The late Sir Henry Holland, in his 'Medical Notes and Reflections,' described hereditary periodic headaches associated with gout, and he added: 'In conformity with this view, there is reason to believe that the kidneys are the excretory organs most concerned in giving relief in these cases, and principally by an increased separation of lithic acid and its compounds.' Megrim, as Dr. Liveing states, is sometimes the expression of what is called a latent gouty diathesis, or, in other words, of uræmia. A father may have suffered from gout, and his son become the victim of megrim. In some patients megrim terminates when they are attacked with gout. 'So evidently,' observes Trousseau, ' is it (megrim) a manifestation of the gouty

diathesis, that articular gout and megrim are observed in the same person, the one subsiding on the appearance of the other; and that it is often also the only expression of the hereditary tendency in subjects who are the children of decidedly gouty parents. In connection with these observations, I would call attention to certain cases, which have come under my notice, of severe neuralgic headache occurring in connection with contracted granular kidneys, and being sometimes the first symptom for which the patient has sought medical advice. The headache in these cases also was evidently toxic, and in one instance fatal coma followed the subcutaneous injection of a quarter of a grain of morphia. The headache has been so severe that more than once I have known the case diagnosed as one of cerebral tumor. I have met with these cases so frequently that I believe it to be a good rule to investigate the condition of the kidneys in all cases of neuralgic headache occurring for the first time in persons of middle or advanced age, before having recourse to treatment.

"In this way, then, megrim may sometimes be traced to hepatic derangement, this derangement consisting, not in the retention of bile, but in that condition of liver which we have found to produce uræmia; and, in accordance with this view, we have often noticed that megrim has been produced by particular articles of diet, and relieved by remedies which unload the liver.

"6. *Vertigo and Temporary Dimness of Sight.*—

Sudden attacks of giddiness are in many instances similar in their pathology to megrim, and giddiness in certain patients replaces the neuralgia. But giddiness, according to my experience, is, in a much larger proportion of cases, connected with hepatic derangement, uræmia, and gout, and follows the use of certain articles of diet such as tea, champagne, citron, etc. Many years ago, Boerhaave's commentator related the case of a man who, during two years, was always seized with vertiginous symptoms when he attempted to stand up. In vain had the ablest practitioners endeavored to cure him. Quite suddenly he had an attack of gout, of which disease, up to that date, he had no indication; and from that moment he found himself free from the vertigo to which he had formerly been liable. A medical friend of my own, who has long suffered from gout, as certainly as he drinks a cup of tea or a glass of champagne, is seized, often while walking in the street, with sudden giddiness; his head feels empty, and neighboring objects seem to whirl round him; he does not lose consciousness, but he would fall did he not lay hold of a railing. After a few seconds or minutes, the attack passes off, but in some patients it is more persistent. Another friend, who never has had gout, but whose urine is frequently loaded with lithates, was seized with dimness of sight and giddiness every night while writing. He took iron, quinine, and other tonics, but he got worse instead of better. He was advised to give up his pro-

fession for a time, and try the effect of change of air; but, before taking so serious a step, he corrected the action of the liver and was cured. A third patient, under my care, who for years had been subject to uræmia, but never had gout, would be suddenly seized, while writing, with dimness of sight and specks floating before the eyes, or even with complete, but temporary, blindness of one eye. The symptoms were removed by curing the liver. Many writers have referred attacks such as those which I have now described to derangements of the stomach. Trousseau, for example, who has described them under the designation of 'vertigo a stomacho læso,' speaks of them as associated with epigastric pain, increased by food, flatulence, acid eructations, and vomiting of glairy mucus; but he admits that the gastric derangement, in which the vertigo is supposed to originate, may not show itself, and this admission certainly accords with our experience. On the other hand, the circumstance of the frequent association of the vertigo with gout or uræmia, makes it probable that this has a toxic origin, and that the liver is the organ mainly at fault.

"7. *Convulsions.*—In January of the present year I saw a gentleman, about fifty-eight years of age, suffering from cirrhosis of the liver. He had all his life been addicted to the pleasures of the table, and had suffered from hepatic derangements as long as he could remember. Six years ago, he became subject to severe

spasmodic twitchings in his legs, followed on three occasions by several epileptiform seizures. Shortly after the last fit he had his first attack of gout, and since then he has suffered repeatedly from the gout, but there has been no return of the convulsions or of the muscular twitchings. There is no evidence of renal disease. Many similar cases are, I believe, on record. For example, Van Swieten mentions the case of a man who had violent abdominal pains, accompanied by delirium and general trembling, and subsequently a severe attack of epilepsy. From that date he had repeated attacks of gout, but no return of the nervous symptoms.

"8. *Paralysis.*—I have repeatedly met with patients who have complained of numbness, tingling and pricking sensations, and a feeling of coldness or creeping in the extremities on both sides, or only on one. These symptoms may be associated with headache, nausea, and depression of spirits, and often cause needless alarm by exciting the suspicion that paralysis is imminent; whereas if associated, as they often are, with evidence of hepatic derangement, they may entirely and permanently disappear under proper attention to diet, exercise, etc.

"9. *Noises in the ears* are common symptoms in gout, and also in uræmia independent of gout. One patient has the feeling of a strong wind blowing into the ear; another compares the noise to that of flowing water, or of singing or buzzing; while in another the sounds have a pulsating character, corresponding to those of the heart.

"10. *Sleeplessness* may, of course, arise from many different causes, but one of its causes is that derangement of the liver which produces uræmia. When this is the case, the patient is often heavy and drowsy after a full meal, and he may fall asleep at once on retiring to rest; but, after one, two, three, or four hours, he awakes, and then he either lies awake for hours, or he is constantly falling asleep, dreaming, or having the nightmare and awaking—four or five times, or even oftener, in the course of one hour—until the morning comes, when he drops into a quiet sleep of an hour or more, or he is obliged to get up tired and irritable. This sleeplessness, like the vertigo I have already considered, is often induced by particular articles of diet, or by some unwholesome combination of them. What will excite headache, giddiness, or disorders of the circulation in some patients will in others cause sleeplessness. Sometimes, however, this symptom will occur when the patient is most careful as to diet. What is important also to note is that, in most cases, there are no obvious symptoms of gastric dyspepsia; the appetite may be good—too good, in fact—the bowels may be regular, and there may be no pain, flatulence, or other discomfort after meals; but there will be found an unusual tendency to the deposit of lithates in the urine, and very often other phenomena of a so-called gouty diathesis. This form of sleeplessness was described a century ago by Cullen, in these words: 'Persons who labor under a

weakness of the stomach, as I have done for a great number of years past, know that certain foods, without their being conscious of it, have prevented sleeping. I have been awakened a hundred times at two o'clock in the morning, when I did not feel any particular impression; but I knew that I had been awakened by an irregular operation in that organ, and I have then recollected what I took at dinner, which was the cause of it. Dr. Haller is liable to the same complaint; and, in his larger work especially, he gives the particulars of his own case.' The affection has also been well described by Dr. Dyce Duckworth in some excellent observations, recently published, on different forms of sleeplessness. It is, however, a form of sleeplessness not generally understood; and harm is often done to patients suffering from it by the administration of opiates and other soporifics, by persons who are ignorant of its real cause. Very often the symptom will be greatly relieved, if not entirely removed, by careful attention to diet, and particularly by abstinence from wine.

"11. *Depression of Spirits.*—The influence of the liver upon the animal spirits has been recognized by medical writers in all ages. To the belief in the existence of such an influence may be traced the origin of such terms as *Hypochondriasis* and *Melancholia*. Although it is not contended that the morbid states of mind, to which at the present day we apply these terms, have their origin in the liver, they are unquestionably, in

many instances, accompanied and aggravated by derangements of this organ; and it is equally true that, independently of either hypochondriasis or melancholia, persons with functional derangement or structural disease of the liver are subject to fits of great depression of spirits and often groundless fears of impending danger, which cease when the liver is restored to its normal state.

"12. *Irritability of temper* is another common symptom of functional derangement of the liver, and is sometimes the first indication of anything wrong. A man who has previously borne the crosses of life with equanimity, and been amiable to those about him, gradually becomes disconcerted by trifles; his mind broods upon them, and he makes all around him unhappy, and himself the most miserable of all. His relatives, perceiving no other sign of indisposition, and failing to recognize the true cause, too often put down his ebullitions of temper to something mentally or morally wrong—to moral depravity, or failure to make any mental effort; but measures calculated to restore the liver to healthy action, if resorted to in time, will often remove the irritability; and either the patient's improvement under such treatment or an attack of gout will reveal the cause of the patient's bad temper. In his 'Psychological Inquiries,' the late Sir Benjamin Brodie thus speaks of a patient with a superabundance of lithic acid in the blood: 'Uncomfortable thoughts are presented to his mind; he be-

comes fretful and peevish, a trouble to himself, and, if he be not trained to exercise a moral restraint over his thoughts and actions, a trouble to every one about him. After a while the poison, as it were, explodes; he has a severe attack of gout in his foot; he is placed on a more prudent diet; the system is relieved of the lithic acid by which it was poisoned. Then the gout subsides, happy and cheerful thoughts succeed those by which the patient was previously tormented; and these continue until he has the opportunity of relapsing into his former habits, and thus earning a fresh attack of the disease.'

"13. *Cerebral Symptoms and the Typhoid State.*— It is well known that restlessness, delirium, stupor, coma, subsultus, tremors, convulsions, a dry, brown tongue, and other phenomena of the 'typhoid state,' are apt to supervene in certain cases of advanced disease of the liver, whether attended by jaundice or not. These symptoms have been usually attributed to a suppressed secretion of bile. But the assumption that the elements of the bile are preformed in the blood, and are merely separated from the blood by the liver, we have already found to be devoid of foundation; and we have also found that bile is far from being, as commonly supposed, a deadly poison; and that its presence in the blood, even to saturation, does not give rise to cerebral symptoms. The cerebral symptoms referred to are often most severe when the jaundice is slight, or when there is none; and they are readily accounted for by the knowledge of the

disintegrating function which the liver is now known to perform. When this function of the liver is arrested or seriously impaired, urea is no longer eliminated in sufficient quantity by the kidneys; lithic acid and deleterious products of disintegrating albumen even less oxidized, such as leucin and tyrosin, and perhaps others with which we are as yet imperfectly acquainted, accumulate in the blood and tissues; and the result is the development of symptoms of blood-poisoning similar to those which arise when the kidneys are unable to eliminate the products of albumen disintegration, owing to disease of their own structure, or to an excessive formation of urea and other products, as happens in many febrile diseases. In acute atrophy, for example, the structure of the liver is destroyed and its functions arrested; leucin and tyrosin take the place of urea in the urine, and are also found in large quantities in the liver, spleen, and kidneys, while cerebral symptoms and the typhoid state are prominent features of the disease."

CHAPTER X.

Effects of Disease of the Liver on the Heart.

The heart is sometimes affected by derangements of the liver, though more frequently by distention of the stomach and indigestion. The most common symptoms are palpitation, irregularity of rhythm, and pulsation of some of the larger arteries. Impurities in the blood, too, as they pour into and through the heart, affect its regular action and cause it to suffer. If these conditions continue a long time, the muscular tissue of the heart grows weak, and debility of the organ is the result. With this condition follows a long train of depressing symptoms, melancholia, etc., not easily understood. Patient and friends, and even the physician attribute it to the imagination, that scapegoat for so many of the nervous disorders of human beings. And here we may say that these so-called imaginary diseases are, except in a few cases, the result of defective nutrition and circulation, or of poisons in the blood, or disorganization of some of the nervous tissue; and they are to be cured by building up the system rather than by any other means. When the faculties are strong and well nourished with rich, pure blood we imagine themselves well, and are well;

but when they are weak and fed by thin, impure blood we have not the strength to imagine ourselves sound, and really we are not sound.

There is another sensation which dyspeptics and those with deranged livers generally feel which is worth noting here. It is a beating or throbbing sensation in the large arteries of the body. It is often felt in the large artery that carries the blood down from the heart in the region back of the stomach and upper bowels, and is sometimes very distressing. This symptom, too, may occur in dyspepsia as well as liver complaint. Its cure depends on the general invigoration of the system.

The pulse in health should beat with regularity; this is a sign of integrity of the heart and the body generally. In those morbid states of the liver which poison the blood through and through, the heart shows it by beating irregularly, as previously mentioned. This may be caused by disease of the heart or by nervousness. This irregularity sometimes amounts to an intermission of one beat. If there be no heart disease, no flatulence or indigestion, no nervousness or old age, then the cause is likely to be a derangement of the liver. In cases of long-continued and serious liver derangement not only may the pulse intermit, but become feeble. In all such cases the usual remedies are iron, quinine, liquors, etc.; but this treatment generally does more harm than good.

Angina pectoris may arise from liver complaint, and catarrh, bronchitis, asthma, boils, some forms of skin

disease, discoloration of the skin, and many other diseases may come from deranged livers.

Our catalogue of charges against the liver has become quite large, and yet we might have extended it. It is too bad, however, to add to the list, as the reader may become discouraged. We purpose here to rest this part of our case, and go on to what most people are interested in—the causes of liver complaint and its cure.

CHAPTER XI.

Causes of Liver Complaint.

It is exceedingly important, in discussing the derangements of the liver, that we find out, if possible, the causes which produce them, otherwise no progress can be made in their treatment. All successful treatment must be based first on the removal of these causes. Let us therefore at once set ourselves about the task fearlessly and earnestly. In general, then, they may be divided into two classes:

1. Those existing in nature.
2. Those pertaining to the individual.

Of the first we will only briefly mention:

1. *Miasma.*—This when breathed depresses the vital powers, and thus lowers the vigor of the organs. Among the various kinds of miasma is the poison which causes fever and ague, which has a specially injurious effect on the liver.

2. *Water.*—Not only may poisons be taken into the blood through the lungs, but, by means of water and food, through the stomach. It is true that the gastric juice of the stomach, if abundant and strong, helps to destroy the poisons taken in drink, especially if they are in small quantities; but this is only to a limited

extent, as the gastric juice is not always present in the stomach to meet the water which may be taken.

3. *Climate.*—The climates of the world vary. Some pinch us with their cold, and if we live in them we must spend all our energies in means to protect ourselves from the rigors of snow and ice. Others are temperate, and others are hot. Now a cold and temperate climate favors the healthful action of the liver; while a hot climate, on the contrary, works on the liver, degenerating its substance and lowering its action; and especially is this so when air and water act in conjunction with climate. These are the principal natural causes that produce liver disorders.

We now come to consider those causes which relate to individual peculiarities and habits, and these are more numerous than might be supposed. Among them are:

1. An insufficient supply of air from unventilated rooms, which especially affects the sedentary and indoor life of those who devote themselves to literature or any occupation within closed walls.

2. Cramped positions of the body, compressing the liver, and impeding the flow of blood through it.

3. The want of sufficient exercise to stir the blood and keep it in motion in every part of the body.

4. Tight clothing about the waist, and especially the use of the corsèt, which impedes the circulation of the blood in the liver more than even a stooping posture does.

5. Nervous excitement, and especially those excesses which use up nervous energy more rapidly than it is generated, leaving the organs without stimuli to perform their functions. Especially to be enumerated are anxiety, mental emotion, worry, fretting, sleeplessness, fear, overworking of the nervous system, and quarreling—as between friends, business partners, husband and wife, etc.

6. Constitutional peculiarities, as a tendency to disease of the liver inherited from parents by children.

7. Poisons, and especially poisonous medicines given during long-continued fevers, reducing the system and its vitality.

8. Any disease that breaks down the health.

9. Then again the food we eat. Only a few of the human race eat as they should. We are of opinion that our unwise eating habits have perhaps more to do with the wrong working of the liver than any other cause. People pour into their stomachs whatever they like, and wonder that they are not nourished. Too much grease, fat, oil, ham and eggs, hot bread, superfine flour, saleratus, raised cakes, and so on to the end of a long chapter.

10. *Intemperance.* Dr. Sewell says: "Alcohol in every form and proportion produces a strong and speedy effect upon this organ when used internally. Its first effect usually is to increase the action of the liver, and sometimes to such a degree as to result in inflam-

mation. Its secretion often becomes changed from a bright yellow to a green or black, and from a thin fluid to a substance resembling tar in its consistence; and this change not unfrequently leads to the formation of biliary calculi, or gall-stones. There often follows an enlargement of the organ and a change in its structure. Aware of these facts, the poultry dealers of England are in the habit of mixing a quantity of spirit with the food of their fowls, in order to increase the size of the liver, that they may be enabled to supply the epicure with a greater abundance of that part of the animal which he regards as the most delicious. I have met with cases in which the liver has become so far enlarged from intemperance as to weigh from eight to twelve pounds, instead of four or five, its usual weight. The inflammation of the organ not unfrequently terminates in suppuration and the formation of extensive abscesses. The liver sometimes, however, even when it manifests upon dissection great organic change in its structure, is found rather diminished in volume. This was the case in the person of the celebrated tragedian, George Frederick Cook, who died several years since in the city of New York. This extraordinary man was long distinguished for the profligacy of his life, as well as the native vigor of his mind and body. At the time of his death his body was opened by Dr. Hossack, who found that the liver, while it was rather diminished in size, was in a state of induration, and surprisingly hard,

so as to make considerable resistance to the knife; and it was of a lighter color than natural. The whole substance of the organ was studded with tubercles, and the blood-vessels, which are numerous and large in the healthy state, were nearly obliterated, showing that the circulation had nearly ceased long before death. I have met with several cases, in the course of my dissections, in which the liver had become shriveled and indurated, its blood-vessels diminished, and the organ greatly changed in its structure; the evident consequence of long-continued habits of intemperance."

We have now given a brief list of some causes of liver disease. In our next chapter we shall have something to say about the best methods of cure, and especially those methods that each individual can apply for himself, and which are eminently health-giving.

CHAPTER XII.

The Cure.

We now come to an important chapter of our series on the liver, and shall try to point out the best hygienic means of curing derangements of this organ. The first statement we make is that much more can be done by a careful regulation of the habits than by any other method, and the first thing to be attended to is the food. Good wholesome food, and the avoidance of deleterious articles of diet will accomplish more than all the drugs in the world.

The things to be avoided are:

1. Very highly-seasoned dishes.

2. Hot and doughy bread and hot biscuit.

3. Such vegetables as are not easily digested—potatoes, cabbages, and the like.

4. Alcoholic beverages, and the use of tea and coffee to any but a very moderate extent.

5. The excessive use of sugar and oily foods.

The varieties of food that can be used to advantage are:

1. Good home-made stale bread. The brown, or Graham, or unleavened, in the form of gems, is preferable, because it furnishes more nutrition, and also because

it keeps the bowels regular. Baker's bread will not answer.

2. A moderate allowance of fresh, lean meat, especially mutton and beef, is admissible.

3. Eggs may be used occasionally, as the appetite craves them, but they should be cooked for fifteen minutes in water at a temperature of 170 degrees, or put into boiling water and then covered and set away from the fire for fifteen minutes. The object of this method of cooking is to make the yelk hard, and leave the white of the egg tender and flocculent, instead of solid. An egg dropped on gem toast or nice brown bread toast is good.

4. Fruit used properly is an almost certain panacea for diseases of the liver.

A sweet orange taken before breakfast is sure to be relished, and should not be omitted where it can be obtained. A mild, tart apple, eaten a little before or after breakfast, is an excellent pill for the liver in case an orange is not to be had.

The grape in its perfection is one of the most delicious of fruits, and in its season should form a prominent part of at least one meal each day; but it should never be eaten in an unripe condition, as we generally find it in market. The best way to use it is to eat it alive, fresh from the vines. Go into the vineyard and select and eat it there, and liver complaint will flee away. A very nice meal may be made of ripe grapes and brown bread and butter. The grape should never be eaten on the

top of a hearty dinner of soup, vegetables, and meat, nor with pastry. It may be eaten freely in the morning and in the middle of the forenoon. It is more of a drink than food, and may be used as such. The juice of the grape flowing through the liver cleanses it of any clogged material there contained. Increasing the action of the kidneys, it carries off through them such poisons as have been generated in the liver, thus acting as a true cleanser of the blood. Giving tone and health to the bowels, it relieves the system through them of offending matter that would otherwise cause much trouble.

Another fruit for early spring use which produces a healthy action of the liver is the ripe strawberry. It is true, as it comes to the city, this fruit is not particularly wholesome unless cooked; but in the country, where it can be picked fresh and sweet from the vines, it should, in its season, constitute a considerable portion of the morning meal, eaten with bread, toast, eggs, etc.

The tomato is a liver pill better than any ever made from calomel. Many a poor sufferer with a torpid liver has been relieved by the tomato in its season. Its acid is very similar to that of the other fruits named, and it produces about the same effect. This fruit may be eaten in almost any form except green. The tomato, when fresh from the vine, is far better than after it has been picked and become stale. It may be taken before breakfast, or between breakfast and dinner, with or without bread. It should not be mixed with other veg-

etables if the best results are to be obtained. With these fruits one may be quite sure to cure most of the ordinary forms of disease of the liver if not too far advanced. It sometimes happens that the stomach will not tolerate fruit. Where this is the case, a little management will suffice to quell the disturbance of this unruly organ. Rarely will good fruit be found to disagree. When fruit produces flatulence it is either unripe or too sour. Only perfectly ripe fruit will answer; any other is injurious. The tomato sometimes proves too acid. In this case a less quantity should be used. Sometimes fruits lie too cold on the stomach. In this case some agreeable mild spice will help to correct the evil. Cinnamon is perhaps the best for the apple, and a little pepper for the tomato.

DRINKS.

We do not need to say that there are a great variety of mild acid drinks which act very favorably on the liver; indeed the reason why mild acid fruits are so valuable is on account of the fluids they contain. Now, instead of eating the fruit, nearly the same benefit can be derived by making delicious and wholesome drinks from them and using these quite freely. When the stomach is weak and delicate, and does not tolerate fruit, then drinks may be so made as to be very agreeable and refreshing. Lemonade and orangeade and currantade may each be used in its place and season. Other fruit drinks may be made to suit the taste, season, and climate. See "Eating

for Strength," to obtain recipes for nearly one hundred varieties.

FRESH AIR.

Another excellent remedy for liver complaint is fresh air. This is so essential that little progress can be made without it. And by fresh air we mean pure, clean air, free from miasma, free from the filth of poisonous emanations, and free from dust and all kinds of damp, heavy vapor. The air should be as highly ozonized as possible by contact with green trees and water. In order to get plenty of fresh air, it is necessary to pay special attention to ventilation of both our day and night apartments, and it is also desirable to live more or less out of doors. Out-of-door life, however, must be accompanied with some form of occupation which will prove pleasant and not very taxing to the strength. For this reason fresh air and exercise should be combined. The following forms of outdoor exercise will be found suitable:

1. Horseback riding. This is adapted to both sexes and almost all ages. It gives the liver just enough motion to stir it and promote blood circulation through it. A gentle, easy-going horse should be chosen for a delicate person, and one that can gallop for a person who enjoys galloping. A hard trotting horse should be avoided.

2. Rowing is a form of exercise which, when taken in quiet waters and with a light boat, is well adapted to

make the liver healthy as well as the lungs and stomach. Where it is available we would by all means recommend it to be followed persistently.

3. Then there is also carriage riding, which is exceedingly valuable, especially when one drives his own horse, with a pleasant, healthful country to view as he passes along. For very delicate invalids, carriage riding is preferable to most forms of exercise, until the strength permits more vigorous physical culture.

4. There are other forms of outdoor exercise not to be forgotten. Among these are climbing mountains, making long excursions on foot, botanizing, hunting, fishing, gathering specimens of minerals, etc., light forms of agriculture and horticulture, trimming grape-vines, planting trees, gathering fruit, etc.

5. While out-of-door exercises are advisable, there are several forms of indoor exercise very beneficial to those whose habits are sedentary. Among these are the lifting-cure exercise, which has no superior, and will often cure cases not to be reached by any other means; exercises on the family gymnasium, especially those that concentrate on the liver, such as bending the body from side to side; also the wand and dumbbell exercises of Dr. Lewis's light gymnastics. We cannot enumerate the varieties here. We may especially commend the thrusting of the wand from side to side as far as the hands will carry it.

In regard to sleep we would advise at least eight hours

every night. Let the room be cool, but not cold, and light and cheering in the day time; ventilate it thoroughly; sleep with the head to the north; sleep alone and go to bed early; rise early also, and take a little light exercise before the morning meal; but do no very severe head-work late at night, either at reading or writing. It is desirable that persons with liver complaint should cultivate cheerfulness. Their disease tends to lower hope and produce a sort of misanthropy. They should strive against this, and keep company with cheerful people, read funny books, and keep the mind occupied with elevating subjects. Do not let a day pass without a hearty laugh. When the habit of cheerfulness is formed it becomes very easy to be cheerful.

As regards bathing it should be practiced daily in a warm room, using much friction on the skin with the hand. At the same time, the feet should be rubbed thoroughly and well dried. A sitz bath is useful for the liver, especially a warm one at bedtime. Let the abdomen and sides be well kneaded after the bath is over.

The Turkish bath may be taken once a week to advantage if it can be had. Let a strong douche bath be directed over the liver after the bath, and let the shampooer rub and knead the bowels and side gently, but very thoroughly, as a part of the process. After the bath remain quiet till the next day.

There is another method of treating chronic invalids, much in vogue in some places, which is very valuable.

It consists in manipulating the entire body gently but thoroughly for an hour or so once or twice a week, or for half an hour more frequently. It is a modification of the movement cure, and when well done is very invigorating. The attendant who does the work should be healthy and strong, and understand the business. This method is allied to the magnetic method, and is indeed a part of it. It is by far too little understood.

Mineral waters are much used for liver complaint, and are often very useful. When taken fresh from the spring and of a mild character they are to be commended for many persons, but too great reliance must not be placed on them. The system will not bear them so long as it will more strictly hygienic means. In some cases they work wonders, when combined with the rest, recreation, and scenery of a summer resort.

Here we bring our subject to a close, reserving a few pages in which to answer some questions which may touch on points not made clear in the preceding chapters.

CHAPTER XIII.

Miscellaneous Questions Answered.

ACTION OF CALOMEL ON THE LIVER.

Is it true that calomel produces any increase of the secretion of bile from the liver, as the doctors teach and as is generally believed?

Ans.—No doubt the teachings of medical men in this respect are slowly changing, and that in another generation only a few will maintain that calomel acts on the liver. We are indebted for this change to the skepticism of several scientific and practical physicians in England, who, a few years ago, appointed a commission to thoroughly investigate this subject. The report was made by Hughes Bennett, M.D., celebrated in two continents for his great ability; and it shows conclusively, we think, that the widespread belief in the virtues and the power of calomel to act on the liver is only a fancy, a medical superstition. The commission found that in whatever form it was given, such as moderate doses of blue pill, or frequently repeated doses of calomel, or very large doses, it utterly failed to act on the liver or increase the flow of bile, and frequently actually diminished it.

It is true the experiments were made on dogs; but there is no reason to think they would be different if made on men and women, for they found no more difficulty in producing salivation in a dog than in a man.

It was also found that the secretion of bile was influenced by the food, and especially increased after a glass of water; and that beyond this and the maintenance of health there seemed to be no means of increasing the flow of bile. The importance of these observations in refuting a widespread error is very great.

It may be asked, what is the effect of mercury on the system, and the answer given is that it is simply a purgative, and, so far as is now known, nothing more, unless we add that it is a poison and deteriorates the general health.

It may be useful to know who originated this false belief and practice. We can only trace it back to old Paracelsus, who lived and flourished in the fifteenth century, when medicine was conjectural and not scientific. The amount of harm he has done can never be estimated. The fact shows us that an error, when it gets thorough foothold on the mind, cannot be easily eradicated.

We may add that old Paracelsus, though one of the fathers of medicine, was a genuine old quack, gathering most of his knowledge from barbers, old women, conjurers, etc. He made a great reputation, in his time, with a quack medicine which he called the "elixir of

life," and with which he proposed to prolong life indefinitely.

Modern medical men have a great hatred of quackery, but it is especially interesting to trace some of their practices back to their sources—the greatest quacks of olden times.

THOROUGH MASTICATION.

Has rapidity of eating anything to do with causing liver complaint and indigestion?

Ans.—It has more to do in causing flatulence and indigestion than in causing liver complaint. Imperfect mastication is the prime cause of much dyspepsia, and dyspepsia is the cause of many diseases of the other organs of the body. For this reason it is exceedingly important that we chew our food thoroughly, and make it so fine before it leaves the mouth that the stomach will find its work half done when the food reaches this receptacle. If the dyspeptic will always do this he will save himself much suffering. The benefits of thorough mastication are these:

1. The food is made so fine that when it reaches the stomach this organ is able to pour into it a large quantity of gastric juice, and this juice mixes with the food as easily as if it were water. If the food be not finely chewed, but exists in lumps, the gastric juice cannot so thoroughly become incorporated with it, decomposition takes place, and dyspepsia results. Let any dyspeptic try the experiment of chewing every mouthful of food till

it is as fluid as it can be made, and so find out for himself with how much greater ease digestion takes place.

2. The second advantage of thorough mastication is even more important than the first. The saliva of the mouth is, like the gastric juice, a digestive fluid, and it acts on the food partly as a solvent and partly in converting its starch into sugar. Now it is necessary, in order that the saliva of the mouth may do its full work, that it should be secreted in large quantities and thoroughly mixed with the food. This is perfectly accomplished by thorough mastication.

Important as is thorough mastication it is not so easily accomplished. The force of habit, begun in childhood, leads most people to swallow their food as soon as it will go down without causing pain. Unless special attention is given to the subject, we forget and keep on forgetting till we grow old and die. Those who are victims to dyspepsia and liver complaint will be obliged to make special effort if they wish to train themselves to eat slowly.

HOW TO EAT AN APPLE.

Many consider an apple unfit for dyspeptics, causing flatulence and acidity. Is this so, and if so is there any remedy?

Ans.—There is no fruit more serviceable to the people than the apple, not only as a luxury, but as a wholesome, nutritious food. Apples contain sugar, gum, much malic acid, and some valuable mineral mat-

ter. It is true that apples often produce indigestion and flatulence, but generally the cause is to be found in the manner in which they are eaten. It may not be known, but it is true, that an apple contains a great quantity of *fixed air*, and, if eaten hastily, this air passes into the stomach with the pulp before it is liberated. In the stomach it becomes heated, expands, and causes flatulence in persons with weak digestion. Such persons should choose a fresh, mild, tart apple, with a silver-bladed knife peel off the skin, and then scrape the apple to a fine pulp; now place it in the mouth and thoroughly mix it with saliva before swallowing it. This is very important. It may be placed on a thin slice of bread and eaten with it. If it is too troublesome to scrape the apple, then it should be chewed till every cell is broken down and the air liberated. Many believe apples are more wholesome if taken in the morning. If this be true, it is only because then the stomach is more vigorous. Thousands of the Swiss peasants make their entire supper on apples and bread, and thus preserve good health and nourish their bodies well.

Physiologically, the apple acts as a stomachic by promoting digestion, and when taken in the morning it becomes a laxative. Its action on the liver is favorable to the health of this organ. It also corrects the evils of too much and too highly concentrated food.

MILK.

May a person with liver complaint use milk?

Ans.—This must be determined by individual experience. Some stomachs will not bear milk, others will.

When used it is generally better to take it with some other food rather than as a drink.

When drunk alone it coagulates in the stomach as a solid mass, which becomes hard like curd, and is not easily dissolved; but when mixed with the food, it enters the stomach in a state of greater division, and coagulates in smaller and more floculent pieces, and is more easily digested.

PATE DE FOIE GRAS.

Is *pate de foie gras* made from healthy or diseased livers?

Ans.—From diseased livers, the product of stuffing, quiet, and warmth. These diseased livers are unwholesome when used as food. Epicures, who are of little use in the world, may not be particularly injured by them, for nothing will make a rotten egg any worse than it is.

CONTRACTED LIVER.

What is the cause of a contracted liver?

Ans.—Usually it is the result of intemperance. Anatomists call a contracted liver the "gin drinker's liver."

SPIRIT DRINKING.

Why does spirit drinking injure the liver?

Ans.—If you will read the chapter of this book which shows how the blood circulates in this organ, you will see that alcoholic drinks pass from the stomach

chiefly into the portal circulation, and immediately into and through the liver. It is the immediate presence of so much alcohol in the liver that does the harm. Those who take their alcoholic drinks only after eating are less injured in the liver, because the drink is mixed with the food, and much of it diverted into other channels.

GALL-STONES.

Why does a gall-stone occasion so much pain?

Ans.—A large gall-stone may exist and give no pain if it remains stationary. But the moment nature tries to force it out, it carries it into the gall-duct, a small passage about as large as a goose quill, and the sharp corners of the stone, pressing on the sides of the duct, lacerate or inflame the part, and cause the pain.

JAUNDICE.

Why does a person with jaundice often see things yellow?

Ans.—Because the humors of the eye are tinged yellow, which makes everything appear as if seen through a yellow glass.

CURE OF JAUNDICE.

Are there any hints especially useful to a jaundiced person?

Ans.—Drink plenty of pure, soft water, eat brown bread and fruit, take plenty of wholesome amusement, especially of a kind calculated to divert the mind. Exercise as much as is agreeable. Live in pure, fresh air. Sleep much and take a warm bath daily, using

much friction after the bath. The wet-sheet bath is especially useful, and so is the Turkish bath.

HYDATIDS IN THE LIVER.

What is a hydated tumor of the liver?

Ans.—Hydated tumors are immature tape-worms which gain access to the liver, in the egg, through our food and drink. It is a rare disease among cleanly people, but very common in Iceland. Whoever has a hydated tumor is very unfortunate, and will not get off without much suffering and perhaps death.

BILLIOUSNESS.

What is the true meaning of the term "billious."

Ans.—Generally when a person says he is billious, he means that his liver does not behave itself properly; but, in nine cases out of ten, the trouble is in the stomach and bowels, which have been clogged up and obstructed. The true remedy is to secure a healthy action of the bowels daily. This will carry off the foulness, and give relief. One reason why calomel seems to give relief to billiousness is because it forces away this offending matter in copious evacuations. How much better to maintain healthful evacuations by suitable food!

DANDELION GREENS.

Do dandelion greens act on the liver?

Ans.—A tolerably harmless purgative for the bowels is *taxaracum*, which is extracted from the dandelion; but this vegetable may be eaten as a food and all its good effects obtained. The freshly expressed juice of

the herb may be used if thought best. It is not poisonous, but more a food than a medicine. It is much better to secure in our food those qualities we seek in medicine than to go to the druggist for them.

PAIN IN THE SIDE.

Does pain in the side indicate liver complaint?

Ans.—The sideache may have several causes, as rheumatism, inflammation or congestion of the liver, spleen, or lungs. If the pain be in the upper part of the chest, it is probably from the lungs. If on the right side, low down, then probably the liver is the cause, and if on the left side, it may be the spleen. It may be caused by sedentary habits, exhaustion, or sprain. The best remedies are the warm bath, with friction and moderate, gentle exercise, and the very best physical training of the parts affected.

SINKING AT THE PIT OF THE STOMACH.

What is the cause of the sinking at the pit of the stomach, the all-gone feeling so often experienced, just as if the stomach were entirely absent?

Ans.—It is a popular expression for a nervous sensation indicating impaired digestion and exhaustion of nervous force. It requires constitutional treatment, regularity of meals, moderate and slow eating of wholesome food, and the absence of tea drinking or taking of alcohol on an empty stomach. The application of electricity over the region of the stomach and bowels will often prove very beneficial.

WARM CLIMATE.

How shall one who removes from a cool to a warm climate avoid liver complaint?

Ans.—By obeying all the laws of health as far as possible, and by paying special attention to the water used for drink, and the food eaten. In a hot climate, avoid the fats and substitute fruits as far as can be done.

MAGNETIC TREATMENT OF LIVER COMPLAINT, HEADACHE, AND DYSPEPSIA.

Much is said of magnetism for curing disease. Are there any simple rules for treating magnetically liver complaint, headache, and dyspepsia?

Ans.—Dr. Babbitt, a well-known and conscientious magnetist, has prepared the following rules in answer to this question:

1. Hold the hand for some time over the right side, on or below the lower ribs. This may be done while still in bed at night or in the morning. The arms, joining the body near the brain-battery, communicate a strong tide of magnetic life to the hands, and especially to the ends of the fingers, through the brachial nerves. The hand thus held will be very apt to start a perspiration, after a brief time, and to arouse the extra magnetic action, which will cause a more active flow of blood to the parts.

2. Rubbing briskly over the same place is very fine practice, as it wakens the frictional electricity, and also communicates the warm magnetism of the hand.

3. Kneading, rocking, and pressing the right side will tend to prevent the blood from congesting in the liver, and, moving it like water in a squeezed sponge, will hasten it onward toward its destination.

4. Gentle strokes over the parts will also arouse action. A very good plan is to place one hand over the liver and strike on it with the other hand.

5. It is well to rub across the whole body from right to left and from left to right for some time, to arouse the liver, stomach, spleen, and the other connecting organs. The pit of the stomach, which, with its plexuses and ganglia, is really the *capital* of the visceral system, sometimes becomes overheated and irritated, and draws the life force away from the liver, which, by this wide sweep of the hand, is brought back again, while the epigastrium itself is brought into better balance. If this arouses the bile so as to cause nausea or restlessness for a time it is all right and desirable, and will lead to triumph at last.

For an inflamed or irritated condition of the liver (*hepatitis*), hold the hand over it for a moment, then pass it outward to draw away the heat. Make a number of passes outward, especially toward the back and sides. To dip the fingers in cool water while doing this will be found useful in cooling the parts.

MAGNETIC TREATMENT FOR DYSPEPSIA.

1. Get the liver in proper condition, as above.

2. If the stomach be sluggish, rub thoroughly over the

parts until a warm glow is communicated. At times, especially mornings and nights while in bed, let the hands rest there for some time, especially over the epigastrium. To knead and rock the parts daily will often hasten the food in its progress to chyme and chyle, before it has stood long enough to ferment and form gases. If *costiveness* prevails, rock and knead the bowels, and especially make a large circle over the whole outside of the viscera, moving upward on the right side, across over the hypochondriac region—which includes liver, stomach, and spleen—and downward on the left side. In this way you will follow the ascending and descending colon, assist the movement of the feces, and help vitalize the liver, etc., all of which have much to do with the proper action of the bowels. A magnetic physician of Chicago could get up immediate action of the bowels by manipulation, and challengéd the regular physicians to excite an action by the most powerful drugs as quickly as he could with his hands. I have often accomplished this loosening action myself; and some persons, who have thus been made to have three passages a day, have felt strong and buoyant, instead of being prostrated or weakened, and followed with still greater constriction, as is apt to be the case with drugs. Although *automany* or self-manipulation may not be quite so effective as the hands of another person, especially one who is well charged with the magnetic aura, yet many unprofessional persons, after a little experi-

ence, accomplish wonders on themselves and families. A young man lately informed me that, since seeing my simple process of relieving costiveness in my "Health Guide," he can start an action on himself any time in fifteen minutes; and a Mr. J. H. Mendenhall, of Indiana, by following the same rules, saved the life of his daughter, after eminent physicians had said she must die in forty-eight hours, and after she had become insane by having her bowels constricted for two weeks, *and by having received a thousand doses of medicine.* He entirely cured her by means of these fine life forces, after the coarser drug elements had brought on paralysis, costiveness, and insanity.

For irritation or overheat of the stomach, place the hand over the pit of the stomach, and make outward passes in various directions to conduct away the heat. The effect will often be good to put the fingers in pure water or in water with a little salt in it. Heating foods and all stimulants should be avoided. When the pit of the stomach feels tender to the pressure, or when there is much of a burning sensation, it betokens this heated condition. If not restrained, it tends very much to a passion for alcoholic beverages. I have broken up the appetite for liquor, in a number of cases, by making these passes across the stomach, and especially by making the outward passes and drawing off the gastric inflammation, manipulating the feet, and toning up and equalizing the system generally. Wetting the fingers

in cool water, and passing them down in front of the ears, toward the shoulders, will modify the heat action of the pneumogastric nerve.

NERVOUS HEADACHE.

Psychomancy, or, in other words, manipulation, is entirely unequaled for curing headache. Press the right hand on the forehead, the left hand on the back of the neck, and hold them there awhile. Make passes down the back of the head and neck, and along down the arms and spine, to draw the heat away from the cerebrum. Cool water should be put on the top of the head and temples, but not on the back of the head. For neuralgic headache, hot water is generally the best for the forehead and temporal regions, although cool, wet fingers placed in front of the ear, at the root of the trifacial nerve, will often subdue the neuralgic pains like magic. In this case, hold the right or positive hand on the right side of the head, and the left on the left side.

In the case of *sick headache* treat the head and also the liver, stomach, etc., in the manner already described, bringing about a general equilibrium.

ELECTRICITY FOR THE LIVER.

Is electricity of any value in the home treatment of liver complaint?

Ans.—Electricity is an excellent tonic, and, to those persons with whom it agrees, especially serviceable in toning up and giving strength to the system, and through that to the liver. Applied also directly to this organ it

will often temporarily relieve congestion. If a person intends to use it on his person, he should secure one of Dr. Kidder's machines, costing about twenty-five dollars, and, in addition, a manual of treatment, and learn how to apply it, beginning gently, and continuing the treatment from a quarter to a half hour daily, as seems agreeable. Be careful not to take too much at first. In case you can take a few lessons from some one acquainted with its use do so. As a promoter of sleep electricity is excellent, if taken at bedtime. If a tonic effect be desired, take it in the morning on rising. It should not be taken more than once a day.

DISPLACEMENT OF THE LIVER.

Does the liver ever become displaced, and how?

Ans.—The liver does frequently become displaced, and mainly in those cases where tight lacing is practiced. It may also occur in men who wear a tight belt about the waist over the liver. Pressure over the liver should never be allowed. It hinders the flow of blood in the organ, and, beside displacing it, causes congestion and enlargement.

PAIN IN THE LIVER.

What causes pain in the liver?

Ans.—1. Obstruction of the gall-duct, which prevents the flow of bile. This damming up of the bile reacts on the liver, causing fullness, oppression, and a dull, heavy pain.

2. Gall-stones are also a cause of pain, and any person

who has them should be careful not to ever exercise or take any violent strain, as this may force the stones into the duct, and bring on intense suffering.

3. Another cause of pain may be ulceration. This, however, is not so common.

4. Neuralgia may be the cause of pain in the liver. This is very rare. One of the best applications for pain in the liver is hot wet compresses changed frequently, and applied for an hour each day, or oftener if required.

WATER DRINKING.

What effect has water drinking on the liver?

Ans.—If taken on an empty stomach early in the morning, half an hour before eating, it promotes the flow of bile and helps to make the liver healthy. It is a good practice to do this. The water should be pure and soft, of a suitable temperature, and taken in such quantities as are agreeable. A glass is not too much for a person in full health. Very old people should have the water hot and mixed with milk, and take less.

THE LIFTING CURE.

Is the lifting cure adapted to diseases of the liver, to dyspepsia, and to headache?

Dr. L. G. Janes writes us as follows on this subject: A practice of ten years in the application of the lifting cure, in diseases and disorders of the liver and digestive organs, enables us to testify to its great value as a remedy in these affections. It has an almost immediate

effect in promoting the secretions, and aiding in the excretion of waste material from the system. These results are in part due to the powerful stimulating and equalizing property of the lifting exercise upon the general circulation of the blood, which compels a healthful action through all the tissues of the body, where the circulation has become torpid through inactivity; and in part due to the direct mechanical compression of the organs, through the pressure by contraction of their surrounding muscular walls. The effect is thus both general and local; general, resulting from the uniform contraction of all the muscular tissues, thereby stimulating and equalizing the circulation throughout the entire body; and local, resulting from the mechanical pressure upon the torpid or diseased organs. It thus forces out effete matter—the potent cause of irritation, ulceration, and disease—from the system, and makes all the excretions more free. It promotes quickly and certainly the peristaltic movement of the bowels, thereby removing constipation. By increasing the activity of the circulation throughout the digestive organs, it renders assimilation more perfect, the body becomes better nourished, and the new tissues formed are of an improved quality. The tissues and internal coating of the stomach and bowels are thus improved in tone, and their functions are consequently more perfectly performed. Through the equalization of the circulation it tends to relieve congestion of the liver, and to allay all inflam-

mations. By removing obstructions and congestions, expelling effete material, and strengthening and equalizing the nervous forces, it is most effective in relieving headaches which arise from indigestion or disordered nervous action. Many persons have been benefited who were subject to periodical or sick headaches, by the gradual amelioration of their predisposing causes. The number of cases of torpid, disordered, or diseased liver, indigestion, dyspepsia, in its protean forms, constipation, heartburn, flatulence, and headache, caused wholly or in part by these derangements, which have been relieved and removed by the lifting cure, is very great; nor do we recollect of any case where a fair trial has failed to produce beneficial results, which the patient had often failed to derive through ordinary hygienic or medical treatment.

INFLUENCE OF

MENTAL CULTIVATION

IN PRODUCING

DYSPEPSIA.

BY

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INFLUENCE OF MENTAL CULTIVATION IN PRODUCING DYSPEPSIA.

Dyspepsia is generally considered a disease of the stomach primarily; but I apprehend that, in a majority of cases, especially among students, it is a disease of the brain and nervous system, and is perpetuated by mental excitement.

Among the reasons I have for this opinion, independent of my own experience, are the following:

1. A blow or other injury of the head, or a tumor in the brain, frequently produces sickness, irritation of the stomach, and all the symptoms of dyspepsia.

2. "Dyspepsia may be produced by mental affections," says Dr. Parry, and in this opinion he is supported by numerous observers. Who is there that has not felt the influence of bad news or mental agitation in destroying the appetite and deranging digestion, and thus producing dyspepsia for a short time?

3. Insanity, or disease of the brain, is usually preceded by the symptoms of dyspepsia, and recovery from mental derangement is often marked by a return of these symptoms.

During the paroxysm or continuance of insanity, the

brain alone appears affected; but, at other times, when the brain is relieved the stomach is affected. I am aware that Broussais and others say that in such cases the disorder of the stomach is the primary affection, and is truly chronic inflammation of the stomach, which, after continuing a considerable time, stimulates the brain until madness is produced. But the same able observer says that the insanity is preceded by long-continued hypochondriasis and other nervous affections, which I suppose to arise from disease of the brain, and not of the stomach, as he affirms. He refers to instances of melancholy from nostolgia, unrequited love, loss of fortune, mortified pride, etc.; but which did not terminate in insanity until after long-continued disorder of the stomach. He supposes that in such cases the violence of the reaction from the disease of the stomach produced insanity; but to me it appears more rational to suppose that the irritation of the brain, produced by the *moral* cause, not only caused the disorder of the digestive organs, but, by its continuance, increased the disease of the brain to such a degree as to cause mental derangement; just as we see a blow on the head produce at first only slight sickness of the stomach and vomiting, but afterward violent delirium. From the cases which Broussais has given, it evidently appears that slight irritation of the brain, from mental or other causes, gives rise to derangement of the stomach, and produces the ordinary symptoms of dyspepsia.

I very much doubt whether sick headache as often arises from disordered stomach as from irritated brain. I have repeatedly noticed an attack of sick headache after indulging in stimulating food and drinks in the evening; but I have known the headache prevented by keeping the head cool after an evening's debauch.

Dr. James Johnson says that Mr. Weeks, of Jamaica, when intoxicated, always went to sleep with his head in cold water in order to prevent headache; and it is a common practice in India and some other places, after drinking what is called a *mosquito dose* of brandy, to sleep with the head on a wet pillow, and thus subsequent headache is prevented. I have known this practice resorted to, and with like effect. But if the pain of the head be caused by indigestion, what possible efficacy can there be in keeping the head cool? I conceive, however, that the increased action of the blood-vessels during sleep, produced by the stimulating food or liquor, determines an unusual quantity of blood to the brain, irritating it, and this irritation of the brain produces the pain of the head, sickness, and disorder of the stomach. I have noticed, moreover, that this disease most frequently affects those whose nervous systems are delicate and easily excited; and I have often known it produced by grief or great mental excitement, and it is seldom relieved without rest or long abstinence.

4. Examination of the bodies of those who have died, after long-continued dyspeptic symptoms, confirms the

opinion I have advanced, that dyspepsia is often a disease of the head, and not of the stomach. Dr. Abercrombie, in "Organic Diseases of the Brain," says, that "symptoms which really depend upon disease of the brain are very apt to be referred to the stomach." After mentioning several cases, in which for a long time the prominent symptoms were those of dyspepsia, and in which no trace of organic disease of the stomach was discovered after death, but tumors or other disease of the brain, he says: "Many other cases of organic disease of the brain are on record, in which the only morbid appearances were in the head, though some of the most prominent symptoms had been in the stomach. Some of these resembled what has been called sick headache; others were chiefly distinguished by remarkable disturbances of the digestive functions." Dr. Abercrombie adds this important caution: "In cases of this class we must beware of being misled in regard to the nature of the complaint, by observing that the symptoms in the stomach are alleviated by attention to regimen, or by treatment directed to the stomach itself. If digestion be impeded, from whatever cause, these uneasy symptoms in the stomach may be alleviated by great attention to diet; but no inference can be drawn from this source in regard to the cause of the derangement."

This last quotation I think explains a very common mistake—a mistake which is not only made by dyspeptics themselves, but by writers on this disease. They

suppose because low diet, etc., relieves the principal symptoms in the stomach, that therefore the disease is confined to that organ; when, in fact, the disease is in the head, but is manifested only by the stomach, the liver, or some organ with which the brain sympathizes, and the *low diet* gives relief by lessening the too energetic action of the brain.

Dr. Burrows relates the case of a lady who had been unwell for several years. She referred all her sufferings to the stomach, and often said that when she was dead *there* would be found the seat of her disorder. She died rather suddenly with fever and delirium, after exposure on a very hot day; and on examining the body no trace of disease appeared in the stomach or bowels, but the brain exhibited marks of long-standing disease.

5. The fact that dyspepsia is frequently cured by permitting the overtasked and tired brain to rest, or by changing the mental labor or excitement, is evidence that it is primarily a disease of the head, and not of the stomach. How often do physicians fail to afford any relief by medicines in what are called "stomach affections," but which are readily cured by traveling, or relaxation in accustomed studies, and freedom from care and anxiety! How often a change in the mental excitement affords relief! It seems as if certain portions of the brain, having been unduly excited, became diseased, and were benefited by strong excitement of other portions of the same organ. How often are stomach affec-

tions cured by inert medicines, aided by the imagination, confidence, hope, etc.!

6. The fact that dyspepsia is a disease chiefly confined to the studious, to those whose minds are much exercised and excited, and to those who, by too early mental education, have had a predominance given to the nervous system, is evidence that the brain is the primary organ affected. I know it is said that the sedentary habits of students cause this disease, and no doubt exercise is necessary to preserve their health; but it proves beneficial by changing the circulation and diverting the blood from the head. If they studied less, exercise would not be so necessary. I have not observed that tailors, shoemakers, etc., are particularly liable to dyspepsia. It often happens that men who commence study late in life, after having been engaged for years in some laborious employment, become in a short time dyspeptic. I conceive that this arises from too severe labor imposed upon the brain. This organ should be gradually exercised in order to develop it properly, and fit it for severe labor without injury.

It is often said that intoxicating liquors produce this disease; but I have been astonished to see how many drunkards are free from it.

Good living is said to cause dyspepsia; but the most healthy people I have ever known have been among those who lived well—who ate freely several times a day of the most nutritious food. By some it is said

that tobacco, snuff, tea, coffee, butter, and even bread cause this complaint; but whoever will make inquiries on this subject throughout the community will find that this is seldom true. In fact dyspepsia prevails, according to my experience, altogether the most among the temperate and careful—among those who are careful as regards what they eat and drink, and the labor they put upon the stomach; but exceedingly careless how much labor they put upon that more delicate organ, the brain. Such people often eat nothing but by the advice of the doctor, or some treatise on dyspepsia, or by weight; nor drink anything that is not certainly harmless; they chew every mouthful until they are confident, on mature reflection, that it cannot hurt the stomach. Why, then, are they dyspeptics? Because, with all their carefulness, they pay no attention to the excitement of the brain. They continue to write two or three sermons or essays every week, besides reading a volume or two, with magazines, reviews, newspapers, etc., and attending to much other business calculated to excite the mind.

To me it is not strange that such persons have nervous and stomachic affections. The constant excitement of the brain sends an excess of blood to the head, and therefore other organs are weakened, and morbid sensibility is produced, which renders the stomach liable to derangement from very slight causes.

"I tell you honestly what I think," says Dr. Abernethy, "is the cause of the complicated maladies of the

human race; it is the gormandizing and stuffing, and stimulating their organs (the digestive) to excess, thereby producing nervous disorders and irritations. The state of their minds is another grand cause; the fidgeting and discontenting themselves about what cannot be helped; passions of all kinds—malignant passions pressing upon the mind—disturb the cerebral action and do much harm."

This statement should be reversed, I think. It is the fidgeting and discontenting ourselves that make the gormandizing so dangerous. I do not mean, however, to approve of gormandizing; and I know that people in this country generally eat more than is necessary. Still I do not believe that good nourishment, and abundance of it, cause many of the diseases that flesh is heir to. Nations that are best supplied with food are the most healthy, live the longest, and have most vigor of body and mind. Children, especially, should be well nourished. Good diet is an essential part of good education. The method of rearing children which some propose—and which I fear some adopt—of restricting them to very light food that contains but little nourishment, is very reprehensible. Every farmer knows that such a course would stint and ruin his cattle, and it will as assuredly have such an effect on children. The way to make children thrive and do well is to give them plenty of good food, and keep their minds free from anxiety and chagrin.

Insufficient nutriment weakens the mind as well as the body. Many writers place poor diet at the head of the causes that weaken attention and debilitate all the faculties of the mind. Thus we often see that disease which wastes the body enfeebles the mind also; though this is not always the case, for sometimes the brain does not diminish as the other parts of the body do.

But to return to the causes of dyspepsia. We do not find this disease prevalent in countries where the people eat most enormously. Travelers in Siberia say that the people there often eat forty pounds of food in one day. Admiral Saritchaff saw a Siberian eat immediately after breakfast twenty-five pounds of boiled rice, with three pounds of butter. But dyspepsia is not a common disease in Siberia. We do not learn from Captain Parry or Captain Lyon that their friends, the Esquimaux, are very nervous and dyspeptic, though they individually eat ten or twelve pounds of solid food in a day, washing it down with a gallon or so of train oil. Captain Lyon was, to be sure, a little concerned for a delicate young lady Esquimaux who ate his candles, wick and all; yet he does not allude to her inability to digest them.

The influence of the mind in producing disease appears to be but little regarded in practice, though there are few who will not acknowledge that this influence is great. Plutarch says, in one of his essays, "Should the body sue the mind before the court of judicature for damages, it would be found that the mind would prove

to have been a ruinous tenant to its landlord." The truth of this mankind will the more realize as they become more intellectual, unless great care be taken to develop and exercise the organs of the body equally and properly.

It is true, however, that the regular application of the mind to severe but calm study and inquiry is not very apt to affect the health unfavorably. The illustrious Kant, who lived and studied to a great age, says that "Intellectual pursuits tend to prolong life."

But studies that strongly excite the feelings or awaken the passions are very apt to injure the health; and it is probably true that the literary men in this country are generally engaged in the strife of party and sects, and consequently their studies are not always those of calm inquiry. But the excitement of the mind, produced by the numerous stirring incidents of the times, tends to increase disease, and especially nervous diseases, among all classes of people. A violent election increases disorders of the digestive organs; and a "difficulty in the parish," a phrase well understood in New England, often multiplies them.

Finally, if dyspepsia be a disease of the stomach, why is it not more frequently cured by attention to diet than it is? I know that by this method some are relieved, and I also know that those disposed to dyspeptic disease will not be able to continue their severe studies if they

are not careful as respects diet. For if the vital energy be all directed to the brain, and consumed by the act of thought, the stomach will not be able to digest much food. If, however they study but little, they can eat more with impunity. I have not, however, known this disease cured by a change of diet alone. I have known many students and professional gentlemen who were afflicted with troublesome stomach affections for several years, during which time they frequently believed they had discovered a remedy for their evils. Sometimes they were to be cured by eating bran bread; at others, by weighing all the food they ate, or by living on rice or porridge, or by living without coffee or tea, or by some trifling change in diet, about as important as putting a few grains, more or less, of salt in an egg.

Most of these methods afford some relief for a while, and this is usually in proportion to the confidence with which they are imposed or embraced; but I do not know of one solitary cure by any of these means alone.

The best instances of cure which I recollect have been in those individuals whose minds have been permitted to rest from accustomed labors, or have been directed to new pursuits, or relieved from anxiety and care. Some have traveled far, and have recovered; voyages have restored others. Some have become husbands, and forgotten their stomach complaints; some have succeeded in business, and are well; some are in

or out of office, and thus their minds are freed from long-continued anxiety; while others remain as they were several years since, having just discovered, for the twentieth time, some new and, as they believe, effectual remedy for their indigestion; but which will assuredly disappoint them if they do not cease from mental toil, and for a while let the excited brain be quiet.

These views respecting stomach affections so common among the students of this country, will to many appear strange, perhaps absurd; but to some I trust they will be useful. I feel confident they will be, if they induce those who are worn down by mental labor and anxiety, connected with long-continued disorder of the digestive organs, to throw aside their bitters, blue pills, mustard seed, etc., and seek bodily health and future mental vigor in judicious exertion of the body, innocent amusements, cheerful company, ordinary diet, and mental relaxation.

HEADACHE.

HEADACHE.

The minor ills of life are the occasion, after all, of far more real suffering than is generally supposed. Toothache, which excites no alarm, will drive the strongest man wild. A little boil will do the same thing. A speck in the eye will so annoy a healthy man that he can do nothing till it is removed. A sliver under the nail will ache and divert the mind from all feelings of kindness for hours, perhaps for days. Very great is the amount of pain suffered in this world by those who are never sick. It is the little things of life that, after all, wear on us and often wear us out. The great trials come on us with such tremendous power that we at once succumb and try to make the best of them. Headache is one of those little things that cause a great deal of suffering. It is one of the minor ills of life that cause unrest, and wrinkle the brow with care, anxiety, and pain. Who has not had the headache? Only the very few whom fortune has favored. The author of these lines is one of the few. He cannot picture in all its fullness the feelings of those who have been differently favored. It is only as he has heard described by others their suffering that he can know anything about it. He believes that much of the headache which

afflicts poor suffering mortals might be avoided. What cannot be avoided might be modified and made less severe, and thus any one who suffers periodically or frequently with this malady should not neglect it, as many do.

Headache is an exceedingly common affection in all civilized countries. It is more frequent among women than among men, and from fifteen to fifty than either before or after these ages. It takes a variety of forms, depending principally upon the particular causes which produce it, and upon the constitution of the patient. Ordinarily it is symptomatic rather than idiopathic, depending upon a morbid condition of some other organ or organs than the head. The term cephalalgia includes every variety of headache. The philosophy of the disease it is not always easy to determine. Which of the particular membranes of the brain and surrounding tissues is the seat of the pain has been the theme of much speculation among medical men, and still there is more or less obscurity surrounding the matter. The philosophy of pain is the same, be it in one or another part of the body. Its seat is always in the nervous system. The nerves of sensation, when in health, take cognizance of external things through touch, sight, smell, hearing, etc. The point of a pin brought in contact with the tips of the fingers is recognized by the sense of touch, and its character determined so far as touch can determine it. Press the pin sufficiently hard into the

flesh, and pain ensues. Now why this pain? It is the action of the nerve of sense carried beyond the degree which permits the sensation to be agreeable. Every sense may become painful when the nerves of the organ through which it is manifested become intensely active. Light is agreeable to the eye, but too much light causes such intense excitement of this organ as to make it a pain instead of a pleasure. Pain in the head, or headache, no doubt has its pathological condition in excessive action of the nerve centers, or those tissues and membranes highly endowed with nerve ramifications. It may be in the muscles of the head, in the periosteum, or in the brain substance. It may have a multitude of causes. A blow on the head may occasion it. A tumor may be the exciting cause. Ardent spirits may excite it. Intense excitement of the nervous system, exposure to a cold, damp atmosphere, or to foul air in which is much carbonic acid gas, or to hot sunshine, often produces headache. By far the larger share of headache, however, has its origin in that foul state of the system, particularly the stomach and bowels, caused either by bad dietetic habits, or by an insufficient elimination of morbid matter through the bowels, skin, lungs, or kidneys. A stomach overloaded with indigestible food, obstructions in the bowels, inactive liver, lungs, skin, or kidneys, all have a tendency to produce a condition which results in headache. I have little doubt that it is often caused by bad air in persons whose habits are otherwise in the

main correct. The tendency of the confined and impure air in unventilated bedrooms, crowded and overheated churches, school-houses, and places of public resort to produce headache is proverbial. Anything that tends to prevent the complete aeration of the blood, as sedentary habits, want of exercise, or improper bodily positions, as bending over school-desks, stooping, as in sewing, may and often does result in this disease. Corsets and tight clothing about the waist prevent the complete oxygenation of the blood by thorough respiration, in the same way that confined air and want of exercise do, and often result in headache. Excessive exercise of any function may produce headache. An extra exertion of the muscular system, particularly if in close rooms, or where the feet are kept cold and damp, and the head dry and hot, or the violent exercise of any passion or emotion not unfrequently produces this disorder. Many cases occur as the effect of hot sunshine. Hot cakes with melted butter, baker's bread, rich gravies and condiments, the indigestible and obstructing dressings used on turkeys and chickens on Thanksgiving and other similar occasions, produce much of the headache, and even more dangerous diseases, which so often occur after holidays. I once knew a person who almost always had headache after eating old cheese, and another who rarely failed to have an attack after eating buckwheat cakes covered with butter and molasses.

Headache is not generally a dangerous disease, but it

is a very annoying one. To know you must be a martyr periodically for a lifetime is not very pleasant, particularly when it is prone to appear at those times when you desire to make more than ordinary exertions. To be unable to make any engagement without fearing that it may either prevent your fulfilling it, or destroy your pleasure or usefulness, is certainly most annoying.

In its treatment much can be done by way of prevention. In a multitude of persons it can be almost or entirely prevented; in others, it can be more or less modified in its severity and shortened in its duration. To eradicate it from the system, its causes must be sought out. This is not always an easy matter, particularly when the patient is sure his habits are perfectly correct. It is not easy for him to see the connection between certain habits, in which he thinks he takes pleasure in indulging, and their logical consequence, headache. A horse breaks into your cornfield and destroys the grain. You see the spoiled ears, the horse's tracks, the broken fence, and trace the effect back to its cause, the unruly horse. Perhaps you go still farther back, and find out that the field was not well guarded by a good fence, or the watchful care of the husbandman. In almost all cases, the farmer who finds his crops destroyed can trace back the effect to a cause, or, if he cannot, he knows some cause exists. In headache, however, those who are not physiologists cannot trace the connection between cause and

effect; hence they are apt to attribute it to anything but the true source. The last thing they did produced it, they think, and that was unavoidable. The horse may, however, jump into the cornfield because the fence is low, and the last thing the patient did may have produced headache—often does—because the system was in just the condition to allow it. A person lives on fine bread, hot rolls, pork, gravies, does not bathe, and has headache. These habits are all perfectly simple! True, but they most surely induce constipation and obstruction of the channels of circulation, and these produce headache.

The preventive means are thorough, most scrupulous cleanliness, not alone of the skin and external surface, but of all the avenues, all the large and small channels of circulation for the fluids of the body. Cleanliness is next to godliness, but it must not stop with the external surface; the internal is of much greater consequence. Cleanliness can be secured only through the means appointed by nature for that end. These are the bowels, the skin, the kidneys, and the lungs. How these different channels for depurating matter may be kept in the highest state of healthy activity is a matter of much importance to those who would retain or improve their health. The laws which regulate bodily cleanliness will now be considered.

In the domain of organic life there is constant activity. Activity begets a using up of the substance of the active

organs, a breaking down of its parts. Take the brain, for instance. In using it vigorously for an entire day, a portion of it is used up by being converted into *debris*, or broken-down tissue. In this state it is little different from decayed flesh; but it is still in the body, and while there produces uncleanliness. It is this decayed, unclean matter that causes fetid breath and unpleasant odors to arise from the skin and from the evacuations. In other words, the body becomes unclean by the decay of its own substance—at least this is one of the sources. Another is the eating of too much food. The law which relates to the quantity of food is, to take as much as the system requires and can properly digest, and this depends upon the person, his habits, and various other circumstances.

No doubt in health, and when the appetite is normal, we can, to a great extent, be guided by it; but in too many cases the appetite is more likely to lead us astray than to guide us aright. Superfluity of food is not only useless but injurious. It cannot be well digested nor assimilated, but passes into the circulation, partially or wholly decays, and thus adds another source of uncleanliness and obstruction. I am no advocate for low and meager diet. Every human being needs and must have sufficient food to be well nourished; but persons of sedentary and inactive habits are very apt to take more than nature requires, and this excess often occasions headache. Still another cause of uncleanliness of the

body is the indigestion of food that is not of the best quality. It is not enough for the healthy support of the body that the amount of food ingested should be sufficient; it is equally important that it be wholesome. Dr. Carpenter says, in his "Physiology," that "It is a fact, familiar to German toxicologists, that cheese, bacon, sausages, and many other articles may spontaneously undergo such deleterious alterations as to give rise, when employed as food, to all the symptoms of irritant poisoning, and which may even eventually produce fatal consequences." I am strongly inclined to believe that the large amount of pork and lard, gravy and fine bread, in the shape of hot biscuit and cakes, has much to do with producing a filthy condition of the stomach and alimentary canal, and such thickness of the blood as results in headache, and often in more serious diseases. Of all the kinds of flesh used for food in America, pork is the worst. It possesses very little nutritive power, and that of the lowest order. Who will estimate the number of headaches caused by pork? People who live in the city will often inquire: "Why is the hog unwholesome?" And the answer might be, "If for no other reason, because he is always kept so filthy." The same necessity exists for purity and high quality of food that exists for good timber in constructing a ship that is to withstand the storms of the ocean. Food is the timber from which our bodies are constructed, and their quality depends, digestion and assimilation being equal, upon its

quality. It is a common belief that the hygienic system of medicine advocates an innutritious, meager, insipid diet. It advocates just the reverse—a nutritious, abundant, and luxurious diet. I have occasionally dined at a boarding-house table where the subject of diet has been discussed, and while boarders and others have taken occasion to pronounce anathemas against a hygienic table as one that produced starvation, they have done most of the starving themselves. Many a man becomes starved on the diet of boarding-houses and hotels, for want of sufficient nutrition, and variety and purity of food. I have been led to these remarks on food because cleanliness of the body depends so much upon it, and headache is so often the result of uncleanliness.

Nature's method of removing the broken-down and decaying portions of the body is accomplished through the bowels, the skin, the kidneys, and the lungs. Even with the best of food, if these organs become obstructed, uncleanliness will inevitably be the result. The bowels are kept free by coarse bread, ripe fruits, hominy, cracked wheat, an absence of concentrated substances, and abundant exercise. Where the patient is unable to take sufficient exercise, an attendant should percuss and otherwise manipulate the abdomen in a great variety of ways, as performed in the movement cure. Very often all that is needed to prevent headache is to remove constipation, obstruction, and torpidity of the liver, stomach,

and bowels; and the operations of the movement cure, with wholesome food, are almost always sufficient.

The skin is kept active for its duties by clothing, friction, exercise, and thorough bathing. If the patient has few of the conveniences for the bath, thorough friction with a damp towel and the hand is often the very best.

The lungs are made to do their duty by giving them all the pure air they need at all times and under all circumstances. If they are contracted so as to do less than they should, they must be trained or educated in the gymnasium, and by means of the movement cure, or medical gymnastics, so as to increase their size.

The kidneys need only pure water as a beverage, along with the fluids found in ripe fruits, to be sufficiently active, in addition to exercise, which, when judicious, provokes all the excretory organs to their duty.

To treat a case of sick headache, in addition to the preventive measures mentioned, we may use, during the attack, the following means: The patient should occupy a cool, dry, and well-ventilated room; place the feet in hot water for a few minutes, to increase the circulation in them and withdraw the blood from the head; drink rather freely of warm water, so as to either produce vomiting or dilute the offending matters in the stomach, and make their removal more easy. If there be fever, a sponge bath will afford much relief. Cloths wet in the coldest water should be applied to the head, and frequently

changed. Sometimes a showering of the head in cold water will give instantaneous relief. Warm or cold fomentations, as are most agreeable, over the stomach and abdomen are very valuable. A copious injection of tepid water into the bowels will prove highly serviceable. Little or no food should be taken until the appetite returns. Pills and powders are of no use, but rather do harm. Observe quiet as far as possible, and, in a majority of cases, relief will be afforded, often in a few moments, almost always in a few hours.

NOTES CONCERNING HEADACHE.

Headache is sometimes caused by long-continued straining of the eyes, especially where there is irregular refraction, and the images of the two eyes are not brought to a focus, but two images are produced. When this cause is suspected, the eye should be examined by an oculist, and the defect corrected.

Headache in children should always attract our attention, and the cause, if possible, be discovered. In case the child is attending school, probably this and the confinement in bad air are the causes. The brain of a child is tender, and, when used over books, flushes with blood and rises in temperature. When this increases to an abnormal extent, pain is the result. This is the headache of congestion. The cure is apparent.

Sudden excitement may produce headache, by a too rapid dilatation of the vessels of the brain. This is apt to occur in those persons who have too little blood in their systems, or it may occur when there is an excess of blood. If from the latter cause, the patient must eat

less and exercise more. If from the former cause, he must eat and digest more, and lead a more quiet life.

Headache from bad air is very frequent in those who go much to parties, theaters, illy-ventilated churches, and crowded assemblages. The carbonic acid of the blood accumulates to such an extent as to cause blood poisoning. There is no cure except pure air. And, indeed, pure air is one of the most efficient cures for all forms of headache. But the air must be taken into the lungs, and not merely come in contact with the skin. We have noticed generally that those who suffer much with headache are small breathers. They live in the air, but do not take it into the lungs in sufficient quantities to answer the ends of perfect nutrition—for the air is only a gaseous food. Such persons should educate their lungs to take full respirations. Several times a day should they inflate these organs to their fullest extent. The muscles of the chest should be trained to act without constantly giving thought to the matter. If people only knew how much good full drafts of air would do them, they would be more anxious to obtain them than they are now. Fill your lungs with pure air rather than your stomachs with medicine, oh! ye who are victims to headache.

As a proof that want of fresh air is a cause of headache, and a supply of it a cure, it may be mentioned

that the inhalation of pure oxygen, or an atmosphere rich in oxygen, has been known to cure the most distressing periodical headaches. Pure, fresh air ought to be equally or nearly equally as good.

Sometimes the hot sun will cause a headache. When this is the case with any person, he should avoid being exposed to the rays of this orb in the heat of a midsummer day. And as a remedy for a headache brought on by the rays of the sun, a deep, hot foot-bath and cool applications to the front head are very beneficial.

Bathing in the sea, when the surf is high, may cause headache, if the bath be a long one, and the person enters into the excitement too earnestly. On the other hand, wading barefooted along the beach, with an umbrella over the head, for half an hour, in pleasant weather, is a good preventive of headache. On a pleasant day the air along the ocean shore is rich in ozone, which ought to relieve headache, if breathed in abundance.

Riding on horseback with pleasant company, or on a horse that you are fond of, and that does not jolt you by hard trotting, is a capital remedy for headache in young girls. It promotes digestion and respiration, and this is of the greatest importance. It cannot be practiced in all weathers, but it can be used in pleasant weather, and in the early morning, when the air is pure, to great advantage.

Working out of doors may, in the case of women, both cause and cure headache. An occasional hard day's work in the hot sun by a person not used to it causes headache; but we have known several cases cured by doing light work out of doors, in a short dress, months in succession. The remedy is worth trying.

Going without a meal may bring on headache, but it could hardly do this in a perfectly healthy person. Men and women ought to be tough enough to miss a meal now and then without suffering so much from it. Eating a hearty late dinner may cause headache next day. The remedies in such cases lie in the hands of the victims.

Too much or too little food will cause headache. The remedy is apparent.

Alcoholic drinks are a fruitful source of headache. Avoid them.

A hard headache may sometimes be relieved or cured by baring the arms to the elbows, and thrusting them into hot water, holding them there till they are red. The feet may at the same time be plunged into hot water up to the knees.

The same effect may be produced by baring the arm to the elbow, and letting some healthy person slap it

with both hands gently, but hard enough to produce a stinging sensation. In slapping, both hands should be brought together, and come in contact on opposite sides of the arm at the same moment. If done skillfully, it will often relieve a nervous headache. If done roughly, it will make it worse.

A headache may be the result of rheumatism. Cure the latter disease, and the former will pass away. Such headaches are very common and distressing. They are best avoided by strengthening the constitution, especially the liver, and guarding against excesses in eating or working. For this kind of headache cold water is not generally best, except as applied from the ends of the fingers, when held for a few moments on the roots of the trifacial nerve, just in front of the ear.

The long hair done up so as to make a covering for the head, increasing the heat of the scalp, and retaining the dandruff, may cause headache. The fashion of long hair and heavy false hair for women is so rooted into the ways of the world that it may never be changed, but so far as health is concerned it is a bad fashion. The hair need not be cut off like a man's, but it may be much shortened, and so arranged as to require little care, and do no harm to the head. Who will help introduce such a fashion?

Wetting the forehead is often beneficial, especially if

the head be thoroughly rubbed and shampooed afterward and then dried. It is a pity that shampooing the head cannot come into more general practice. If it could be done every day it would prove almost a panacea for many forms of headache. The lower back of the head should not be wet with cold water, but may be wet with hot water. Indeed, pouring hot water over the cerebellum will sometimes cure headache.

Stovepipe hats are often an exciting cause of headache. True, they are dressy and elegant and must be worn on certain occasions, but they should always be ventilated thoroughly by holes in the top. They should also be made as light and easy fitting as possible.

Tight boots and shoes will cause headache. They should never be worn. They destroy comfort, grace of motion, and happiness. They prevent the flow of blood in the extremities, and cause slight congestion of the brain. The shoe should be made to fit the foot, and not the foot to fit the shoe.

As a preventive of headache the daily bath must not be overlooked. It fortifies the system as no tonic does. One of the best forms of morning bath is to dash water over the entire person suddenly, then rub the skin hard for a moment with the hands, and then throw a sheet over the body and rub over this till dry. It should be

thoroughly done and cause a glow, not slowly nor feebly done, causing a chill.

Having the hair combed by a person with a magnetic hand for half an hour will often relieve headache. An interesting case of this sort came under our notice lately. A gentleman who suffers most excruciatingly with periodical headache, caused by dyspepsia and exhaustion, sat down, and his little niece, a beautiful girl, combed his hair a little while, when all the pain left him. But it is not every one who has a beautiful little niece to do such work.

Exhaustion from overwork, thin blood, or too little blood are frequent causes of headache. In all such cases the true remedy lies in building up the system by true hygienic remedies, such as wholesome food, rest, recreation, and in taking care not to overdo. Such persons ought not to be burdened with too much care. Let such eat all the good food they can digest. Corroding care is the bane of life to many. Too little care, to many more.

It is sometimes the case that a person will suffer for years with a most distressing headache and not know the cause. The doctors can do the patient no good, and often do him much harm. In such cases it is well to suspect gall-stones, and if they are proved, a good

method of procedure is to take, on going to bed at night, two ounces of sweet oil. After going to bed, manipulate over the liver with the hands, or have it done pretty thoroughly, so as to excite to action all the deep tissues, and in the morning take once in thirty minutes a seidlitz powder, till the bowels operate. Repeat this once in five days, till the gall-stones are all out. The success of the operation depends on the thoroughness of manipulation. This alone will often drive them out. It is not absolutely necessary to take the powders. The oil softens and lubricates the parts so that there will be little pain. Should the pain be intense, hot fomentations over the liver will alleviate it. If no gall-stones are found, little harm can come from this treatment.

Heavy six o'clock dinners often cause persons to awake next day with headache. In such cases, the remedy is apparent. It consists in eating less. Those who are not willing to make the sacrifice must continue to suffer. They certainly cannot expect health without paying the price, which is obedience to nature's laws of health.

Tea-drinking is often an unsuspected cause of headache, causing as it does exhaustion of the nervous system. Those who will use it should do so in moderation. Take it weak and after the meals, rather than between or before them.

We translate from Niemyer's "Atmiatrie" the following paragraph: He says: "It was recently my lot to listen to a conversation in a country tavern, between country people, concerning some wooden barracks which had been erected for soldiers. The landlady said: 'Since we came to dwell in this board booth we all sleep better, and I have lost that troublesome headache which formerly annoyed me so much.' 'Ah!' said a guest, 'that is because formerly you slept in a foul, closed room, while here the fresh air penetrates through the many cracks.'" The author asks: "How would the people like it if for headache, instead of drugs, the physician should prescribe a change from sleeping in closed rooms to open barracks?"

The current proverb, "that long sleep causes headache," is best explained by the fact that, if the room is not ventilated, the air becomes so poisonous, by many hours' breathing over and over, as to cause it. A long sleep in a well-ventilated room will not cause the head to ache.

Some severe forms of headache may have their origin in defective circulation caused by disease of the heart. When this is the case there is much to be hoped for by taking good care of the general health, avoiding all excesses and excitements, and living strictly according to the requirements of nature, whose laws are beneficent.

Coffee often causes headache, but few will admit this. It is a drink which people are very apt to abuse if they use it at all. It should never be taken strong or in large quantities, and those who find it injurious should discard its use altogether.

Going without sleep, or taking too little sleep, is a cause of headache which can only be remedied by opposite means. Most people require eight hours out of twenty-four for sleep, in order to perfectly restore the nervous system; a less amount leaves the nerves and brain weak, and a ready prey to evil influences.

The headaches of old age are generally caused by taking too much food—more than is required by the work done and more than can be digested. The remedy is moderation at the table. Most of the dangers to health in advanced life may be guarded against by moderating appetites and desires to the strength. As the powers of life wane, they should not be taxed more than is wise.

Very severe and distressing headaches arise from a failure of the kidneys to act. When this is the case, the remedy must be applied to these organs. A sitz bath, hot compresses over the small of the back, gentle friction, and an occasional glass of lemonade are good remedies. The kidneys carry out of the blood urea, really a very

dangerous substance, which if allowed to remain poisons the blood. It is not certain that its very slight accumulation may not be the cause of more headache than is now known. The skin secretes urea in small quantities, and if the skin is very active it may do the work of the kidneys; but if it, too, is torpid and lazy, then look out for headaches. It will be observed that persons who suffer much with headache generally have a torpid skin. They should improve it by daily bathing. The Turkish bath in such cases is excellent.

One word concerning pleasure and pain, and we are done. These two states stand to each other as opposites, as do heat and cold, wet and dry, strong and weak, up and down, credit and debit, plus and minus; whatever mode of nervous excitement is present in pleasure must be absent in pain. We generally connect pleasure with high vitality, pain with low vitality, feebleness, and exhaustion. It is true that there are exceptions to this rule, as there are to all, but still the fact holds good that a state of pleasure is connected with an increase, and a state of pain with a decrease, of all the vital functions. Headache is no exception to this rule.

In closing this chapter we must apologize for its somewhat fragmentary character. It was not written for the physician, but for the people, and they will not fail to pick out of it such crumbs of knowledge

as may be of use to them. We believe that more than half the headache in the world is caused by little disobediences to physiological laws, and a brief paragraph may help to show a sufferer where his or her trouble lies better than an elaborate essay. We would certainly encourage all to hope that they may, by obedience to nature's laws, avoid headache, if they will only try hard enough; but they must try wisely, and not ignorantly.

In conclusion let us say that this little book has been a labor of love, and we send it on its mission, hoping it will prove, at least in some small degree, serviceable to those for whom it is intended.

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